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ABSTRACT

Research was conducted in Europe to determine the following: (1) the current situation in the chemicals industry in regard to transparency, recognition, and transfer of qualifications; (2) the obstacles to transparency and recognition of qualifications in the industry; and (3) the key areas for future action and possible measures to promote greater transparency and recognition of qualifications. The study identified current and needed patterns of mobility, European policy assisting mobility, and attitudes and practices of institutions and businesses. Data were gathered through an investigation of statistical evidence on cross-border mobility and a review of literature on mobility in the European Union (EU); an exploration of EU policy in the area of labor mobility and transparency and recognition of qualifications in the chemicals industry; and case studies on the attitudes and practices of 14 employers in the industry. The study found a small and fairly constant level of movement between member states, with mobility concentrated among professional and highly educated groups. In addition, there are no established qualification standards within the chemicals industry below the doctorate level. The companies believe that the lack of transferable qualifications is not a problem; instead, costs, language, and culture affect mobility. The study also found that although some initiatives have been started to promote cross-country mobility in the chemicals industry, they are still significant obstacles to people working in another member state and that further action may be necessary to promote labor mobility. (Contains 25 references.) (KC)

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Mobility in the European chemicals industry sector

The role of transparency and recognition of vocational qualifications

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Mobility in the European chemicals industry sector

The role of transparency and recognition of vocational qualifications

Heather Rolfe

Cedefop Panorama series

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A great deal of additional information on the European Union is available on the Internet.
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Foreword

This report forms part of the Cedefop project on 'Transparency of vocational qualifications' initiated in 1998. 'Transparency' in the project title is a key concept and reflects the main aim of the work which is to support the Member States and the European Commission in creating mechanisms for promoting transparency of qualifications. Transparency of qualifications can be defined as 'the degree of visibility necessary to identify and compare the value and content of qualifications at sector as well as regional, national and international levels([1]) and expresses the need to make vocational qualifications more visible throughout Europe. The concept represents a shift in focus from central regulations towards the needs of individuals to provide information on the training they have received and their skills and competences when applying for jobs outside their country of origin.

The right of European citizens to live and work in other Member States is fundamental and a basic assumption is that real freedom of movement gives citizens greater opportunities to develop their skills and experiences and to avoid unemployment. According to European policy, free movement is also a prerequisite for full economic and social integration and efforts to remove obstacles due to lack of information and understanding of 'foreign' vocational qualifications have been on the agenda since the Treaty of Rome of 1957. The transparency approach is one of the latest approaches introduced. It covers measures to improve information on existing national arrangements and measures to increase the visibility of foreign qualifications. Its initial legal base can be found in the Council Resolutions of 1992 and 1996, respectively. Finally, enhanced transparency and increased mobility of people among Member States will facilitate mutual understanding of different cultures and new ways of working and living.

Although issues of mobility and qualifications are regarded as important, there is little published research on the issue. Therefore very little is known about the real impact of measures at Community level and the relation between mobility and transparency of vocational qualifications.

In brief, this is the background to the initiative to launch three studies focusing on the transparency issue and its relation to mobility in three different sectors of the economy. One of these sectors, the chemical industry sector, is covered in this report. Two other reports will cover both the tourism industry and the health sector and a separate synthesis report will summarise all three sectors. The chemical sector was chosen because it is a well-established and heavy industrial sector comprising work requiring different qualifications and qualifications on different levels offering a field of many possibilities for employees with 'foreign' training and companies operating in a number of Member States.

([1]) Cedefop - European Centre for the Development of Vocational Training. Glossary, proposed by Cedefop, January 1999, p.17.

Four main areas are covered by the research:

(a) the current situation on mobility;
(b) polices in the area of transparency and recognition of qualifications;
(c) the link between mobility and transparency of qualifications, systems for the recognition of qualifications;
(d) European standards.

The report gives a comprehensive picture of these four areas and even if coverage on the current situation on mobility (a) above, is less elaborated than the others (due to lack of available data) this is, as far as we know, the first study done of this kind. We hope the results will be used in different contexts and taken as a point of departure for further and deeper study of the relation between mobility and prerequisites for mobility. As this study shows, there is still a lack of crucial information and data which is needed for further development of the discussions as well as measures to be taken in the field.

Thessaloniki, September 2000

Stavros Stavrou
Deputy Director

Sten Pettersson
Project Manager

Table of Contents

EXECUTIVE SUMMARY 5

1. INTRODUCTION 13

1.1. BACKGROUND TO THE RESEARCH 13
1.2. RESEARCH AIMS 14
1.3. METHODS 15
1.4. STRUCTURE OF THE REPORT 16

2. PROMOTING MOBILITY AND RECOGNITION OF QUALIFICATIONS 17

2.1. INTRODUCTION 17
2.2. EUROPEAN MEASURES ON MOBILITY 17
2.3. EUROPEAN MEASURES ON QUALIFICATIONS 19
2.4. THE CHEMICALS INDUSTRY 21
2.4.1. Key points 23

3. THE EXTENT OF MOVEMENT AND PATTERNS OF MOBILITY 27

3.1. INTRODUCTION 27
3.2. STATISTICAL EVIDENCE 27
3.3. DISCUSSION OF MOBILITY ISSUES 30
3.3.1. The value of immobility 32
3.3.2. Key points 32

4. THE CHEMICALS AND PHARMACEUTICALS INDUSTRY: EMPLOYERS' POLICIES AND PRACTICES 35

4.1. INTRODUCTION 35
4.2. THE PERSPECTIVE OF REPRESENTATIVE BODIES 36
4.3. THE EMPLOYERS' PERSPECTIVE ON MOBILITY AND QUALIFICATIONS 36
4.3.1. Occupational profile 36
4.3.2. Sources of recruitment 37
4.3.3. The requirement for formal qualifications 38
4.3.4. Availability of jobs to foreign nationals 38
4.3.5. Recruitment or transfer of employees across Member States 39
4.3.6. Who is mobile and between which Member States? 42
4.3.7. Has information technology reduced the need for cross-border recruitment? 42
4.4. QUALIFICATIONS - RECOGNITION AND COMMON STANDARDS 43
4.4.1. Qualifications for research 44
4.5. ARE THERE ANY COMMON QUALIFICATION STANDARDS IN THE EUROPEAN CHEMICALS INDUSTRY? 45
4.6. MEASURES TO PROMOTE MOBILITY 46
4.6.1. Key points 49

5. CONCLUSIONS **53**

5.1. INTRODUCTION 53
5.2. WHAT 'S KNOWN ABOUT MOBILITY IN THE EUROPEAN UNION? 53
5.3. WHO IS MOBILE, AND WHY? 54
5.4. WHY ARE LEVELS OF MOBILITY LOW? 55
5.5. WHAT IS THE ROLE OF QUALIFICATIONS IN ENABLING OR DISCOURAGING MOBILITY? 56
5.6 MEASURES TO ENABLE AND PROMOTE MOBILITY: ARE THEY SUFFICIENT? 57
5.7. PROVIDING INFORMATION TO EMPLOYERS 58
5.8. GAPS IN KNOWLEDGE ABOUT LABOUR MOBILITY AND QUALIFICATIONS 58
5.8.1. Employers' practices 58
5.8.2. Mobile employees 59
5.8.3. Other employees 59

6. BIBLIOGRAPHY **61**

APPENDIX 1. INTERVIEW SCHEDULES **63**

APPENDIX 2. THE MAIN LEGAL MECHANISMS GRANTED BY EU LAW **67**

APPENDIX 3. EUROPEAN NATIONALS IN THE LABOUR FORCE AS PROPORTION OF NATIONAL LABOUR FORCE **69**

Executive summary

Background

The right of European citizens to live and work in other Member States is fundamental to the achievement of full economic union and social integration. Freedom of movement gives citizens greater opportunities to develop skills and experience and to avoid unemployment. It allows firms to recruit from across the EU, which is potentially of most benefit to industries with skill shortages or with high skill requirements, such as the chemicals sector.

Historically, barriers to 'foreign' workers have been considerable, and the development of the European Union has involved the progressive removal of restrictions on EU nationals. The removal of barriers arising from different qualification systems has been a key aim. This has not been an easy task because the development of the EU has encompassed a period of considerable economic and social change in which qualifications have become more important as a means of gaining employment and for career progression. Therefore, while legal barriers to cross-border movement have fallen, European citizens have increasingly needed a 'passport' of qualifications even within their own Member States.

Although issues of mobility and qualifications are regarded as important at the level of European policy, there is little published research on the issue. Therefore, very little is known about the attitude of employers towards qualifications awarded in other Member States, particularly how European employers know whether the qualifications held by applicants from other Member States are equivalent to their national qualifications. Little is known about whether employers understand the training and qualification systems of other Member States, or even if they receive applications from EU citizens with unfamiliar qualifications.

The focus of our research for this report was on the chemicals industry which is a key industry for European competitiveness and a large employer, accounting for almost 1.7 million employees. Issues of mobility and qualifications are of considerable relevance to the chemicals industry because many companies operate in a number of Member States and it is an innovative and high risk industry with high skill requirements.

Research aims

The aim of the research was to increase Cedefop's knowledge of the role of qualifications in relation to cross-border mobility in the chemicals industry. The main objectives of the research were as follows:

(a) to describe and explain the current situation in the chemicals industry with regard to transparency, recognition and transfer of qualifications;

(b) to identify the obstacles to transparency and recognition of qualifications in the industry;

(c) to identify the key areas for future action and possible measures to promote greater transparency and recognition of qualifications.

A central question of the research was whether it is possible to identify common qualification standards within the European chemical sector and, if so, for what occupations and levels. This was addressed at each stage of the research.

Research methods

The research was conducted in three main stages:

(a) an exploration of EU policy in the area of labour mobility and transparency and recognition of qualifications, with specific reference to the chemicals industry;
(b) an investigation of statistical evidence on cross-border mobility and review of literature on mobility in the European Union;
(c) empirical research on the attitudes and practices of 14 employers and a number of institutions representing the chemicals industry.

EU policy: promoting mobility and mutual recognition of qualifications

The right to free movement has been established through a number of directives which have been progressively extended and reinforced. The emphasis of current Commission policy and practice is on overcoming remaining practical obstacles to mobility. For example, the 'EURES' network' has been created to provide information about job vacancies and working and living in other Member States.

Employers' reluctance to recognise the validity of vocational qualifications obtained in another country has been regarded as a major obstacle to the free movement of workers within the EU. This has been addressed through a series of initiatives, including transfer of 'regulated', or professional qualifications, the 'comparability project' for mutual recognition of qualifications at skilled and intermediate level ([2]).

([2]) The chemicals industry does not have 'regulated' occupations as defined by the Commission, but occupations in the chemicals industry were included in the 'comparability project.'

A number of key reports have highlighted the importance of recognition of qualifications in facilitating labour mobility and the need for European standards of training, as well as improved information about qualifications for employers and workers. These include the High Level Panel on free movement of persons chaired by Simone Veil, and the European white paper on education and training, both reporting in 1997. The Commission has established programmes to promote mobility through the international exchange of students, teaching staff and, to a lesser extent, working people and trainees. These programmes include the *Training and Mobility of Researchers* (TMR) and *Marie Curie Fellowships*, both particularly applicable to chemistry and the chemicals industry.

Organisations representing the industry and chemical professions at European level have produced lists of broadly comparable qualifications, an approach which promotes transparency of qualifications rather than equivalent requirements for specified jobs. The European Communities Chemistry Council (ECCC) has developed schedules of qualification standards at full professional (degree) level, senior technician and junior technician levels. The ECCC has also established a pan-European professional title of 'EurChem', an abbreviation of 'European Chemist' to indicate high level of competence in the practice of chemistry.

The extent of movement and patterns of mobility

Statistics of mobility show a fairly constant but small movement between Member States which, against expectations, has not increased in the 1990s. The reasons for this are explored in the literature on labour mobility and include the narrowing of differences in income, which has reduced incentives to migrate, and the substitution of trade for labour mobility. However, there is very little research which addresses the issue at anything but a general level by, for example, examining mobility in a particular industry or occupation. A possible explanation for this is the limitations of statistics on mobility, which enable only general patterns to be identified.

We had intended to examine cross-border mobility within the chemicals sector of the European Union, exploring the major trends in mobility, variations between countries, characteristics of mobile citizens, including occupation, age and sex. However, this degree of analysis in a particular industry is not possible using current sources of data. Problems include differences between Member States in the way that data is compiled, gaps where one might wish to make comparisons and sample sizes which make statistical analysis at industry or occupational level unreliable. Research on labour mobility within the EU is therefore hindered by a lack of reliable data.

In the absence of existing datastets, detailed information about movement between Member States can only be obtained through new surveys. A large-scale survey of employers in the chemicals industry was beyond the scope of our research. However, we believed that qualitative research with selected employers would allow us to identify their practices in relation to international recruitment and their experiences and views on recognition of qualifications.

Therefore, while our study cannot say how widespread are the policies and practices which we identify, it identifies what are probably the main issues to employers and the range of approaches within the industry.

Case studies of chemicals and pharmaceuticals companies

The research findings are based on interviews with personnel managers of 14 chemicals and pharmaceutical companies. These include companies under British, French, German, Italian and Danish ownership, in most cases at their main country of operations. The majority of companies selected were large, and had a strong research base, since this might increase the importance of international recruitment.

Some companies have a policy of favouring local or national recruitment over international, for 'patriotic' reasons, but most emphasised that all jobs are 'in theory' open to foreign nationals from all Member States. However, in practice, most staff are recruited locally, some nationally and few internationally. The main reason for this is cost, and the generally healthy flow of skills at local and national level.

Companies divide into two broad groups in terms of their recruitment practices:

(a) those who recruit locally wherever possible and meet most skill requirements through this strategy, but use national recruitment for more senior positions, particularly research and development and senior sales;
(b) those who recruit locally for production staff and for routine white-collar positions, but more widely for research and development, sales and marketing and management positions. National level recruitment is commonly practised, alongside international recruitment for scientific researchers and other specialists.

It is common practice in the industry to recruit or promote internally. It is not usual for companies to recruit production staff, such as process operators, ready-trained and qualified, they prefer to train new employees in the company's own processes, practices and 'culture.' There is therefore little or no cross-border recruitment of production staff.

The important exception to this approach is the recruitment of research staff. Particularly at senior level, these are frequently recruited from other Member States, including from universities and research institutes. This confirms the findings of other research on mobility, which emphasises the higher mobility rates among highly skilled professionals.

Recent literature on labour mobility identifies an increasing trend towards short-term stays rather than permanent moves between Member States. This has been identified particularly with regard to highly skilled employees. Our research suggests that this is true of the chemicals industry, where transfer is far more commonly practised than cross-border recruitment.

Management is the main group involved in staff transfers. In some cases these are managers or technical experts in specialist areas, transferred for a short period to acquire or impart expertise. Both international recruits and mobile employees were reported to be generally under 35 years old and male, reflecting gender imbalance in the senior management posts involved.

It has recently been argued that Information Technology will reduce the need for physical movement, particularly among highly skilled employees, by enabling knowledge and skills to be acquired or imparted through e-mail or video links (see Salt et al, 1993; Straubhaar and Wolter, 1997). We found no evidence for this assertion in our research. Employers agreed that, while Information Technology may reduce the need for shorter visits and meetings, it has no effect on medium and long-term transfers of senior staff because these need to be physically present in order to gain experience and understanding of company operations.

There is evidence that company recruitment practices are taking place as a result of Internet advertising. Many of the case study companies advertise career opportunities and vacant posts on their company Internet site and welcome speculative applications and curricula vitae. This, alongside other information sources, such as EURES, the Internet-based European Employment Service, is likely to lead to increased applications across Member States. In the chemicals industry this is most likely to affect the recruitment of research staff.

Recognition of qualifications

There are no common qualification standards within the industry in Europe for jobs below degree level. This stems from difficulties in establishing common standards at national level. The only broadly equivalent qualification is PhD, for which similar standards apply across Europe.

Almost all companies said that they often would not know whether an applicant's qualifications are equivalent to the national qualification required for the job and relied largely on internal information sources. They did not use the lists of equivalent qualifications compiled by Cedefop and by the European Communities Chemistry Council (ECCC). The problem of establishing equivalents did not arise often, because, with the exception of research, companies received few applications from citizens of other Member States.

Although companies receive relatively few applications from citizens of other Member States, this may increase in future. Employers said they would be more confident about recruiting across borders if equivalent qualifications were known and understood. At the same time, they did not feel that common qualification standards were necessary. It may, therefore, be sufficient to promote greater knowledge and use of current lists of equivalent qualifications, such as the ECCC list. This endorses the European Commission's approach which emphasises transparency rather than direct comparison of qualifications.

Companies were asked if cross-border movement and recruitment would increase if measures were taken to improve recognition of qualifications between Member States. Many companies did not think this would happen because cross-border recruitment is limited by other factors. These include, for companies:

(a) costs, language and differences in 'culture' (for example, management style);
(b) a relatively healthy supply of skills at local and national level;
(c) the importance of experience, rather than formal qualifications.

and, for individual employees:

(a) Housing, pensions, education systems and 'cultural integration.'

There is also some evidence that in some industries or occupations, immobility may have particular benefits because it allows for local-specific knowledge and skills to be accumulated. Companies in the chemicals industry strongly value accumulated experience in company practices, which may discourage mobility among certain employees, for example process operators. However, this is not true of all occupations in the industry and, as Cedefop points out, a stay abroad is increasingly considered desirable and seen by companies as a stage in a successful career (Cedefop, 1998).

Conclusions: the future of mobility in the European Union

There is a small, but growing, literature on employers' practices towards recruitment and transfer across Member States. This has highlighted three issues of relevance to the research presented here: the more frequent use of cross-border transfer, rather than recruitment of new staff from across borders; the greater involvement of highly skilled professionals in transfer and cross-border recruitment; and the role of technology. Our research confirms the findings of existing research on the importance of temporary transfer over recruitment in terms of numbers of employees involved. It also confirms findings on the greater mobility of highly skilled and professional staff. However, it does not support recent arguments that technology is dispensing with the need for mobility. There is some evidence that improved communication is leading to more mobility, particularly short-term stays. Increased international advertising of jobs, through the internet, may encourage job seekers to apply for positions in other Member States.

Within Europe, competition for highly skilled staff is expected to intensify as multinational corporations seek to recruit staff from the same pool. This may lead to higher levels of international recruitment, but our findings suggest that in the chemicals industry this will largely involve highly skilled professionals, for example senior production managers and scientific researchers. The industry is unlikely to change its preference for local recruits and internal promotion for more junior posts, at least in the short term.

Employers have little knowledge of the qualifications systems of other Member States and this should be a matter of some concern since it could lead to discrimination in recruitment. Information on broadly equivalent qualifications should, therefore, be more easily available.

Our research has not looked at mobility from the perspective of employees; indeed this is a major gap in existing research. We know little about who these individuals are, their motives and experiences. On the issue of qualifications, we do not know how they present their 'foreign' qualifications to prospective employers and whether they experience difficulty in having these recognised and accepted as equivalent to national qualifications.

There is a need for research on the general population in Europe, on their attitudes towards mobility to other Member States, on the factors relevant to their decision and the role of qualifications. It is possible that many citizens are unaware of their right to free movement, or believe that their qualifications will not be recognised. It is important that these potential obstacles to mobility are known to ensure that future policy measures are appropriate and effective.

1. Introduction

1.1. Background to the research

From its very beginnings in the 1960s, the concept of a European community has included the right of citizens to live and work in other Member States. Indeed, this right is now regarded as fundamental to the goal of full economic union and also to social and political dialogue and integration. Restrictions on labour mobility have been removed and common recognition of qualifications has been pursued. These measures are aimed at helping people living in areas of high unemployment to move to areas where labour is in short supply, but mostly to move in order to develop their skills and experience, and to allow firms to recruit from across the EU. This is particularly beneficial for industries with high skill requirements, such as the chemicals sector.

Efforts to facilitate mobility have progressed throughout the 1970s, 1980s and 1990s, encompassing a period of widespread economic and social change in Europe. With these economic and social changes, qualifications have become more important as a means of gaining employment and for career progression. This has resulted from increased skill requirements, the development of more structured training programmes and the adoption of more objective recruitment methods. As a consequence, while legal barriers to working elsewhere in the European Union have fallen, even within their own Member States, European citizens have increasingly needed a 'passport' of qualifications to work and progress in certain industries and occupations.

In some Member States the range of qualifications for some industries and occupations proliferated during the 1970s and 1980s, sometimes leading to bewilderment among employers about what level of competence might be expected from applicants with various qualifications. During the 1980s and 1990s a number of Member States, including Spain, the UK, Ireland and Denmark, began working towards a more coherent internal qualifications structure. This was initiated by the need to address confusion at national level about qualifications, but also to improve international understanding of national qualifications and systems from outside the country. The European Commission has been engaged in continual efforts to improve the recognition of qualifications, first through 'comparability' and more recently through promoting transparency of qualifications. However, little is known about the impact of measures taken to assist recognition of qualifications, including the attitudes of employers. Information is needed on applications from citizens of other Member States, including who applies and for what jobs, and on whether these applicants' qualifications are understood and accepted.

The focus of our research for this report was on the chemicals industry which is a key industry for European competitiveness. It is a large employer, accounting for almost 1.7 million employees (see Table 1). Issues of mobility and qualifications are highly applicable to the chemicals industry for a number of reasons. Many companies operate in a number of Member

States. Secondly, as an innovative and high risk industry, skills and qualifications are of greater significance to chemicals than to many other sectors and the industry is particularly reliant on graduates for key positions. Thirdly, the chemicals industry has suffered from skill shortages, particularly in chemical engineering roles. At the same time, standardisation of qualifications has been a problem in transfer of skills between companies in the same country as well as between companies in different Member States. Therefore, one might expect there to be problems in matching qualifications obtained in different Member States. In short, it was thought that the chemicals industry might benefit greatly from mobility of employees within the EU, but this could be restricted by employers' poor knowledge of the precise skills and competencies associated with 'foreign' qualifications.

Table 1: Employment in the European chemicals industry (thousands)

Country	1992	1995	1998
Germany	654.8	535.9	484.6
France	259.5	246.3	236.5
United Kingdom	267.8	255.7	252.3
Italy	207.5	191.0	188.4
Belgium	98.5	93.1	95.0
Spain	131.0	120.2	123.0
Netherlands	91.2	80.4	79.1
Sweden	37.0	33.5	34.5
Ireland	15.3	18.3	N/A
Austria	52.2	48.8	42.0
Denmark	52.9	53.0	58.9
Finland	18.7	18.0	18.0
Portugal	33.3	28.6	27.2
Greece	17.8	17.8	17.5
European Union total	1,937.5	1,740.5	1,679.8

Source: CEFIC

1.2. Research aims

The aim of the research was to increase Cedefop's knowledge of the role of qualifications in relation to cross-border mobility in the chemicals industry. The main objectives of the research were as follows:

(a) to describe and explain the current situation in the chemicals industry with regard to transparency, recognition and transfer of qualifications;

(b) to identify the obstacles to transparency and recognition of qualifications in the industry;

(c) to identify the key areas for future action and possible measures to promote greater transparency and recognition of qualifications.

The focus of the study was on current patterns of mobility, European policy assisting mobility, and on attitudes and practices by institutions and businesses. In essence, the study was concerned with how policy and practice currently promote or discourage mobility and with how progress may be made. It was also intended that the research should address the issue of qualification standards across Member States by addressing three questions, as follows:

(a) is it possible to identify common qualification standards within the European chemicals industry?
(b) if yes, for which occupations or professions and at what levels do common qualification standards exist?
(c) if no, are such standards being sought after or avoided?

1.3. Methods

The research was conducted in three main stages:

Stage one
An investigation of statistical evidence on cross-border mobility and review of literature on mobility in the European Union.

Stage two
An exploration of EU policy in the area of labour mobility and transparency and recognition of qualifications, with specific reference to the chemicals industry.

Stage three
Empirical research on the attitudes and practices of 14 employers and a number of institutions representing the chemicals industry.

The main method for stage 3 was telephone interviews with key representatives of the selected businesses and institutions. Because the purpose of the research was to obtain information on practices rather than policies, interviews with businesses were at establishment level. Interviews were conducted with personnel specialists and operational managers responsible for recruitment and staffing.

The three main questions of interest to this stage were:

(a) which jobs in the chemicals industry are available to foreign nationals. Which are not, and what are the reasons for this?
(b) how are foreign qualifications recognised and validated?
(c) which are the main obstacles to the transfer of competence and qualifications from one country to another? What is the role of formal regulations and informal factors?

Copies of the topic guides used in interviews with employers and representative bodies are included in Appendix 1 to this report.

A central question of the research was whether it is possible to identify common qualification standards within the European chemical sector and, if so, for what occupations and levels. This was addressed at each stage of the research.

1.4. Structure of the report

The research findings are presented in Sections 2, 3 and 4 of the report. Section 2 looks at the context of mobility and the role of qualifications in European policy, directives and activity. In addition to a general overview of relevant measures, the section looks at the applicability of these to the chemicals industry. Section 3 looks at the extent and patterns of movement in the European Union. It looks first at statistical evidence and at how much existing data-sets can tell us about the more detailed picture. The section also looks at themes in the growing literature on the issue of European labour mobility, including the role of highly skilled professionals, and relates these to the chemicals industry.

The chemicals industry comes into sharp focus in Section 4 where the findings of empirical research with representative bodies and employers in the European chemicals industry are presented. The policies and practices of 14 employers from chemical and pharmaceutical companies in Britain, France, Germany, Italy and Denmark are examined in depth. They key questions of this section are whether employers recruit or transfer staff across Member States and how non-domestic qualifications are treated. Section 5 draws together the findings of each stage of the research and makes some conclusions for future action on qualifications and mobility.

For the benefit of readers requiring a summary of the main findings of each stage, key findings are presented at the end of each section of the report.

2. Promoting mobility and recognition of qualifications

2.1. Introduction

Free movement of citizens has always been central to European Commission policy and the measures to facilitate movement have been gradually put into place, accompanying the growth of the Union over the last 30 years. The Commission recognised at an early stage that qualifications were a potential barrier to movement, particularly in view of the range of apparently incompatible systems and qualifications. Therefore, measures to facilitate mobility have included issues of equivalence and recognition of qualifications.

In this section of the report we present an overview of European policy, directives and activity on mobility of labour and on qualifications. In addition to this general overview we look specifically at any measures applying to the chemicals industry or occupations.

2.2. European measures on mobility

As a previous Cedefop publication pointed out, the right to seek and take up work in another Member State under the same conditions as the resident population is one of the key achievements of European integration ([3]). The right to free movement has been in place for workers and their families from the six founding countries since 1968 and for those in the countries which have joined subsequently. As a result of a single market, free movement has been extended to include economically non-active citizens such as students and pensioners. A number of supporting measures have been put in place to remove other barriers to movement, including the coordination of social security measures and mutual recognition of qualifications, which are discussed later.

The right of access to employment in another Member State is laid down in Article 48 of the Maastricht Treaty and has been elaborated upon in a number of further directives and measures. The main legal mechanisms granted by EU law are listed in Appendix 2 of this report. In recent years efforts to remove any remaining barriers and to promote real freedom of movement have stemmed from the decision by heads of state and government at the European Council in Amsterdam to make employment policy a matter of common concern and to develop an action plan for the full implementation of the single market. As a result, in 1997 the European Commission published an action plan for free movement of workers which built on the

([3]) Cedefop, Mobility and migration of labour in the European Union and their specific implications for young people, Cedefop, 1998

Amsterdam agreements and provides a strategy to remove any remaining obstacles to movement of labour. The five main points of this plan are:

(a) improve and adapt the rules, including by removing any flaws and gaps in the legal mechanisms for free movement;

(b) make the labour market more transparent, making EU citizens and employers aware of the opportunities and benefits of mobility, including provision for social security and tax;

(c) strengthen responsibility and cooperation, including facilitating access to employment and solving any problems and conflicts;

(d) improve knowledge and visibility of the right to free movement, including information on mobility within existing information sources;

(e) develop innovative projects through the European social fund.

Also in 1997, the High Level Panel on free movement of persons, set up by the Commission in 1996 and chaired by Simon Veil, confirmed that a number of gaps and flaws existed in the legal mechanisms for free movement of workers. The panel concluded that, while the legal framework for free movement was in place, it should be more actively pursued in order to be made to work. It therefore called for existing rules to be reinforced. Its report to the Commission included the following recommendations:

(a) information for and about people moving around the Union must be improved;
(b) access to employment in the Member States must be facilitated;
(c) employment in the public sector must be opened up;
(d) social rights need modernising;
(e) family rights should be amended to reflect social change;
(f) training across the EU (vocational, language training) must be facilitated;
(g) greater equality of tax treatment should be achieved;
(h) the situation of legally resident third country nationals must be improved.

In terms of practical measures to promote mobility, a number of programmes and services have been established since the late 1980s with this aim, including a series of education and training and mobility programmes such as Socrates and Leonardo. These include initiatives to promote future mobility via the international exchange of students and teaching staff.

A network providing information on employment opportunities to citizens interested in mobility, the EURES network (EURopean Employment Services), was established in 1994 to bring together the public employment services of all countries belonging to the European Economic Area (EEA) as well as other regional and national bodies concerned with employment issues. Its three basic services are information, guidance and placement of individuals seeking employment

in another country in the EEA. Its services are provided through two main databases: the first contains information on living and working conditions in each of the Member States; the second lists selected vacancies which are genuinely open to non-nationals.

Other initiatives include the Citizens First initiative, launched by Commission at end of 1996 which aimed, through guides and national publications, to inform European citizens about their rights and opportunities for, among other things, study, work, travel and residence in the European Community.

Measures and initiatives to promote mobility are likely to continue during the 21st century. As the European Commission's *Employment agenda for the year 2000* notes, 'While barriers to cross-border commuting have been reduced considerably in recent years, there are still significant obstacles to people working in another Member State.' It is, therefore, clear that the Commission does not regard its work in this area to be complete and that further action may be necessary to promote labour mobility.

2.3. European measures on qualifications

Three main areas of action have been pursued by the European Commission to promote freedom of movement and labour mobility: social security cover; employment rights; and mutual recognition and comparability of qualifications. Of the three areas, the issue of qualifications has been most complex and difficult to deal with. Employers' reluctance to recognise the validity of vocational qualifications obtained in another country was identified as a major obstacle to free movement, particularly if the job in question is 'regulated' in some way in the employer's country, so that only those holding a particular qualification can do it. Therefore, a refusal to recognise a qualification means that an individual cannot practise his or her profession. The emphasis of the European Commission's early work on qualifications was therefore on establishing comparisons to overcome restrictions applying to particular occupations. From the late 1980s the EU's Council of Ministers adopted a series of directives to ensure the mutual recognition of qualifications some of which, the 'sectoral' directives, 'harmonise' the education and training which each Member State requires to obtain a professional qualification in the occupations covered. Therefore, for some time, qualifications in occupations such as medicine and architecture have been recognised in all Member States, regardless of the Member State in which they were acquired.

The 1988 directive, which set up a system for comparisons to overcome restrictions applying to particular occupations (No 89/48/EEC), resulted in agreement on qualification standards across Europe for occupations in the health service, architecture and other professions. This system, involving assessment of each profession on a 'case by case' basis, was highly time-consuming. Therefore, in order to speed up the process of mutual recognition, it was followed up in 1991 by a general recognition of diplomas obtained through a minimum of three years study at a university or Higher Education Institution. The directive specified that the occupation must be

'regulated', meaning that it is associated with a particular qualification or training certificate required for the job, or with a protected personal title. A further directive, adopted in June 1992, set up a second general system to complement the first, covering occupations where entry is limited to those who hold lesser qualifications and training, generally limited to below graduate level (No 92/51/EEC).

A particular approach was followed with regard to recognition of lower qualifications, for example at skilled and intermediate level. This was to establish the comparability of vocational training qualifications for specified jobs, with job descriptions mutually agreed by Member States. The 'comparability project', as it was called, was aimed at promoting labour mobility by providing more information for recruiters on the value and meaning of unfamiliar qualifications held by applicants from other Member States. It was a laborious process and slow to get off the ground. The decision was made to set it up in 1985, a standard sheet was published four years later. The process of comparability itself involved the Commission in a lengthy process of compiling information sheets for a wide range of skilled blue-collar and white-collar occupations at 'EU training level 2,' which may be termed intermediate level. The employees covered by the project, therefore, include technicians and supervisors (and their equivalents in the service sector). Each sheet contains an agreed job description and the qualifications typically held by workers in this position within Member States. Names of qualifications are given in the local language and in translation. The project created, in theory, a useful resource for employers in the chemicals industry because jobs at this level predominate in the chemicals companies. However, as we explain in Section 4, this information is not used by employers in the industry.

The aim of the comparability project was to aid worker mobility by providing more information for recruiters on the value and meaning of unfamiliar qualifications held by applications from other Member States. It was also intended to help employers recruit in unfamiliar labour markets by indicating the qualifications that skilled employees may hold in a particular occupation. There was no intention, however, to use the comparability project to harmonise qualifications or training within the EU Member States. The information sheets themselves had no legal status, although they could be used as evidence of comparability in cases where a job applicant claimed that a prospective employer's refusal to accept qualifications from another Member State was discriminatory (and contrary to the EU's free movement principles).

The issue of recognition of qualifications has been highlighted in a number of European white papers in the 1990s. European Commission officials acknowledge that the measures taken to date on mutual recognition and comparability of qualifications still leave a number of gaps. For example, legal measures establishing enforceable procedures for the mutual recognition of qualifications apply only to 'regulated' professions and occupations, i.e. where entry to a profession or occupation is restricted to people who hold a qualification from the national training system. This does not generally apply to occupations in the chemicals industry. We described earlier how the Commission's action plan of 1997 emphasised practical measures to overcome barriers to the movement of labour. It also identifies the need to make the labour market more transparent, including through recognition and transparency of qualifications, and

informing EU citizens about the potential of the European labour market in terms of finding employment, enhancing qualifications and career development. The action plan identifies the need for employers to be better informed about the benefits of a multicultural and multilingual labour force. The emphasis has therefore moved away from direct comparison of diverse qualifications towards transparency, which emphasises recognition and trust of skill and competence.

The High Level Panel on free movement of persons chaired by Simone Veil reported its findings to the Commission in 1997, confirming the existence of a number of barriers to labour mobility. These included qualifications and training. The report identified the need for vocational training across the EU as well as improved information for employees and business, again emphasising transparency.

Also in 1997 the European white paper on education and training proposed the introduction of a European system of accreditation of technical and vocational skills. It is proposed that 'This could take the form of personal skills cards allowing instant assessment of everybody's skills and qualifications as and when they are acquired throughout life'. The Commission supported this proposal because of a perceived need to take better account of workers' informal learning experience. We discuss employers' views on this proposal in Section 4.

2.4. The chemicals industry

What then are the implications of the legislation, directives and other activities for the chemicals industry and its employees? In terms of mobility, no special regulations exist for the industry. However, a number of initiatives have particular relevance, including the programmes aimed at promoting mobility through the international exchange of students, teaching staff and, to a lesser extent, working people and trainees. These include programmes under the Socrates and Leonardo umbrellas. A stimulus for mobility was intended from programmes to promote co-operation in the fields of technology and research, such as Esprit and Eureka. A programme on *Training and Mobility of Researchers* (TMR) has been highly relevant to the industry, although figures of the research disciplines of grant holders are not readily available. *Marie Curie Fellowships* were established to promote mobility and cross-European collaboration in chemistry research, and these have resulted in a large number of eligible applications. However, these have rarely involved links with industry, which the Commission considers a limitation of the scheme so far.

AllChemE, the coordinating organisation for chemistry and chemical engineering in Europe, has stated that the European Commission has greatly facilitated the breakdown of national barriers through promoting the mobility of researchers in Europe, and that this should be increased. It argues that research training should be more closely co-ordinated through European networks established in the TMR programme. However, AllChemE is also critical of the European programmes described here, arguing that:

'There are no internal priorities within these programmes and there is no attempt to address the relationship between the excellent research activities and the needs of a very important and successful chemical industry' (undated, p 40).

On the question of qualifications and their mutual recognition, the chemicals industry does not have 'regulated' occupations as defined by the Commission. This is despite the fact that many jobs require higher education and the industry recruits a high proportion of graduates, particularly in areas such as research and chemical engineering. These, however, are employer requirements rather than legal requirements or regulations. Some occupations are, however, subject to regulation for safety reasons. For example, only a person registered as a 'qualified person' is able to release batches of pharmaceutical products on to the market place. This requirement operates across Europe and is covered by a number of directives. Requirements also exist in such areas as experiments involving animals, where training and licensing in animal handling is required. Professional associations are of long-standing in the industry and offer individual membership to employees above graduate level. Many senior staff in the industry are members of professional associations, including chartered bodies in the UK and Ireland.

The 'comparability project' covered occupations in the chemicals industry. We referred earlier to the slow progress made by this initiative, resulting from the enormity of its task. The decision to establish comparable qualifications for specified jobs was taken in 1985, and information sheets for occupations in the chemicals industry published in 1992. These sheets include information on the job title, certificates, diplomas and other vocational training qualifications associated with the job in each Member State, institutions providing vocational training and organisations entitled to award certificates, diplomas or other qualifications. The sheets also include a description of the general duties for the occupation covered and a detailed description of tasks in the chemicals industry. Information sheets were established for:

(a) chemical laboratory assistant,
(b) chemical plant operator,
(c) plastics-processing operator,
(d) water supply, water treatment and effluent disposal operator,
(e) solid and liquid waste treatment operator,
(f) laboratory assistant for ecology.

The extent to which these sheets have been used by employers is not known but, as we explain in Section 4, they were not used by employers in our study.

More recently, a different approach to assisting recognition of qualifications has been taken by organisations representing the industry or chemical professions at European level. The European Communities Chemistry Council (ECCC) has developed schedules of qualification standards in three categories:

Category A - full professional (degree)
Category B - senior technician
Category C - junior technician (craft or skilled operator)

Relevant, broadly comparable, qualifications are listed for each Member State, along with guidelines on appropriate training courses and job specification with level of responsibility. These establish potentially useful lists of equivalents for employers recruiting from other Member States. Although the schedules list qualifications which are seen as broadly comparable, the approach differs from the comparability project which aimed to link qualifications to specific jobs and therefore to establish direct comparisons. The ECCC's approach promotes transparency of qualifications at specified skill levels.

We referred earlier to membership of professional bodies among senior staff in the industry, which individuals take up for reasons broadly related to career development. In the UK and Ireland this gives individuals the status of chartered chemist and is a quality standard for employment at professional level. The ECCC has recently developed a pan-European professional title of 'EurChem,' an abbreviation of 'European chemist' to indicate high level of competence in the practice of chemistry. As the ECCC points out:

'...academic qualifications alone have limited value. They say nothing about application of knowledge, level of skill, safety and environmental consciousness, level of responsibility, ability to communicate and level of supervision received.'

The ECCC believes that in introducing the EurChem title, the chemical societies at European level have met the need for an easily understood title to indicate competence at a high level. To date approximately 700 individuals have the title of EurChem, across all Member States.

2.4.1. Key points

(a) The right to free movement has been established through a number of directives dating back to the founding of a European Economic Community. In recent years it has been extended and reinforced.

(b) Despite the measures taken, the European Commission believes there are still significant obstacles to people working in another Member State and that further action may be necessary to promote labour mobility.

(c) Employers' reluctance to recognise the validity of vocational qualifications obtained in another country is seen as a major obstacle to the free movement of workers within the EU. The early work of the Commission focused on 'regulated' qualifications, those linked directly to the practice of a profession. This was followed by the 'comparability project' which was set up to establish the comparability of vocational training qualifications at

skilled and intermediate level. This aimed to promoting labour mobility by providing more information for recruiters.

(d) The Commission has more recently emphasised practical measures to overcome barriers to the movement of labour which included recognition and transparency of qualifications. It has emphasised the need for EU citizens to be well informed about the potential of the European labour market in terms of finding employment, enhancing qualifications and career development; and the need for employers to be better informed about the benefits of a multicultural and multilingual labour force. With regard to qualifications, the emphasis has moved away from establishing comparisons, to 'transparency' of qualifications and their related skill requirements.

(e) Practical measures have included setting up an information service on employment opportunities to citizens interested in mobility, the 'EURES network..'

(f) The High Level Panel on free movement of persons chaired by Simone Veil, reporting in 1997, confirmed the existence of barriers to labour mobility, including qualifications and training. Its report identified the need for vocational training across the EU as well as improved information for employees and business, again emphasising the need for transparency.

(g) Also in 1997 the European white paper on education and training proposed the introduction of a European system of accreditation of technical and vocational skills. The Commission supported this proposal because of a perceived need to take better account of workers' informal experiential learning.

(h) No special regulations exist to promote or ensure freedom of movement in the European chemicals industry, although a number of initiatives have particular relevance, including the programmes aimed at promoting mobility through the international exchange of students, teaching staff and, to a lesser extent, working people and trainees. These include programmes under the Socrates and Leonardo umbrellas, the training and mobility of researchers (TMR) and Marie Curie fellowships.

(i) The chemicals industry does not have 'regulated' occupations as defined by the Commission. This is despite the fact that many jobs require higher education and the industry recruits a high proportion of graduates, particularly in areas such as research and chemical engineering. Some occupations are, however, subject to regulation for safety reasons and many senior staff in the industry are members of professional associations, including chartered bodies.

(j) The 'comparability project' drew up information sheets for six occupations at operator level in the chemicals industry. The sheets include a description of the general duties for the

occupation covered and a detailed description of tasks but, as we explain in Section 4, these are not used by employers.

(k) More recently, organisations representing the industry or chemical professions at European level have produced lists of broadly comparable qualifications, an approach which promotes transparency of qualifications rather than equivalent requirements for specified jobs. The European Communities Chemistry Council (ECCC) has developed schedules of qualification standards at full professional (degree) level, senior technician and junior technician levels.

(l) The ECCC has recently developed a pan-European professional title of 'EurChem,' an abbreviation of 'European chemist' to indicate high level of competence in the practice of chemistry

3. The extent of movement and patterns of mobility

3.1. Introduction

In the 1950s and 1960s, levels of mobility of labour within Europe were high. The main direction of this movement was northward from Greece, Southern Italy and Portugal to countries including Germany and Great Britain. This movement was encouraged by the rapid economic development of Northern European economies, their demand for labour and the relative poverty of parts of Southern Europe. The extent of this movement led to a widespread belief that removal of barriers to mobility would result in even greater levels of movement within Europe, particularly from the south to the north, but also more generally by citizens seeking to advance their skills and prosperity. In fact, since the 1970s, levels of mobility have been much lower than expected and this has been the cause of much debate.

An appropriate starting point of any analysis of labour mobility is a review of the extent of movement, measured statistically, to determine both the extent and main patterns. However, as we explain, research in this area is hindered by a lack of reliable data. This applies particularly to any attempt to examine mobility in particular industries, such as chemicals, or selected occupations. Therefore, in addition to a general review of the available data, we look at other sources of information, including from qualitative research on employers' practices and on mobility of highly skilled employees, which may have particular relevance to the chemicals and pharmaceuticals industry.

3.2. Statistical evidence

At the outset, we had intended that this stage of the research would examine cross-border mobility within the chemicals sector of the European Union, exploring the main trends in mobility, variations between countries, characteristics of mobile citizens, and establishing any links between mobility in the chemicals industry and differences between national labour markets. However, it became apparent that this degree of analysis of a particular industry is not possible using current sources of data.

Figures on foreign workers in EU Member States are regularly published by Eurostat. The statistics are based on various sources including administrative data, social security records and sample surveys. In addition to the range of sources used, different definitions and concepts are used in some Member States (see Salt, 1976). They are therefore not directly comparable from country to country and, as an earlier publication by Cedefop (1998) recommends, have to be treated with caution.

The Community labour force has been identified as a better source for comparing levels and trends of movement in the foreign population and labour force in EU countries ([4]). There are, however, a number of problems with the data. Dummett, 1995, explains how 'stock' statistics for resident EC foreigners in EU countries are not an accurate indicator of internal movement in the EU because different countries compile the figures differently and gaps often exist where one might wish to make comparisons. Another drawback is that they only show the position at a given time and may miss out many short-term moves. A third problem, for the research for this report at least, is that the Labour force survey is a sample survey, which means that analysis of movement in particular industries and subsectors is made difficult by small sample sizes at sector and occupational level. Therefore any attempt to analyse movement between Member States in an industry such as chemicals would be highly unreliable. Because of these difficulties, analyses of movement between Member States can identify only general trends and patterns, which although of interest, do not show precisely what is happening.

Despite the limitations of the data, research using the available statistics has made a number of observations about labour mobility in the European Union:

(a) the entry of each country into the European Union has not resulted in increased migration, with the exception of Portugal;

(b) since the 1970s the number of EU nationals living in other Member States has remained almost static in some countries (Denmark, Ireland, Luxembourg, Netherlands and Portugal) and fallen in others (Belgium, France and Germany);

(c) increases in European immigration are recorded in Greece, Spain and the UK, but statistics are believed to be unreliable for Greece and Spain and the UK is explained largely by Irish immigration, which is unrelated to the creation of a single market;

(d) fewer than 2 % of all workers in the European Union are employed in another Member State;

(e) in most EU countries the share of EU immigrants is decreasing while the number of non-EU immigrants is increasing;

(f) people who move between Member States to work are predominantly young and male. They are in a range of occupations but the professions and manual trades are more strongly represented than those in intermediate positions.

Some researchers have conducted more detailed examination of patterns of migration. On the issue of corporate relocation, Salt analysed the labour force survey to find that during 1985-95

([4]) A summary of the data on the number of EU nationals in the labour force by country of birth is presented in Appendix 3.

261,000 workers were transferred by their employers into the UK, an average of 24 000 per annum. Although he uses these figures to calculate the number of British citizens working as expatriates each year, his calculations make a number of assumptions, including the average length of stay which make them unreliable.

King (1997) uses a number of datasets to show a steady increase in the migration of professional and managerial workers. Similarly, Cedefop, in an analysis of the labour force survey, found a positive correlation between a worker's level of education and his or her probability of migrating. This is an interesting finding, which has some relevance for our research because the chemicals industry employs a relatively high proportion of highly qualified employees.

Other research, Dummett, 1995, has found that EC migrants are younger than the host population. This author, who analyses patterns of migration and immigration into EU Member States warns against drawing any conclusions from the available data, stating that:

'....the lack of adequate and comparable data makes any conclusions rash, particularly as the economic future is uncertain and economic factors play a large part in migratory patterns.'

The available data is, therefore, useful for tracking general trends, but cannot provide a detailed picture or be used to predict the future direction of mobility. However, a number of pieces of research have used labour force statistics in combination with other data. This has resulted in a growing literature on labour mobility which addresses some interesting issues. The first of these is the question of why levels of mobility are not higher than are currently recorded. One of the main reasons is believed to be the increase in trade which has grown at a much faster rate within the EU than trade with the rest of the world (see Salt, 1996, Cedefop, 1998). At the same time, the difference in levels of prosperity between European countries has become much narrower, reducing the incentive for migration. As Salt states, the standard deviation between levels of national GDP per head has fallen since the 1970s while regional differences in GDP have been tackled through allocation of regional and structural funds. On the question of trade, Cedefop argues:

'....in the course of European integration trade has substituted for migration. The prosperity gap – a major factor for migration – has been mitigated by increased trade between the EU countries. Furthermore, capital is more mobile than labour and can substitute for migration. Therefore, cross-border labour migration between EU countries has not increased' (1998, 33).

However, as it also points out, this general situation does not rule out regional, sectoral or qualification-related gaps between countries which may give opportunities for labour migration.

3.3. Discussion of mobility issues

Recent literature has also addressed the issue of employers' practices towards recruitment and transfer of employees across Member States. One of these is the relative importance of cross-border recruitment and cross-border transfer of existing staff. An analysis of the British labour force survey from the mid-1980s found that about a third of all registered EU immigrants (excluding Irish) were through company transfers (Salt and Ford, 1993). The researchers identify two main reasons for this practice:

(a) higher posts usually require firm-specific knowledge. Therefore, these posts in subsidiaries in other countries are better filled by internal promotions and not by external recruitment which involves training costs;

(b) secondments broaden knowledge by allowing a seconded person to get to know a new establishment and applying firm-specific knowledge in a new environment. They are therefore practised for career development.

We will explore the benefits of the practice of internal transfer in relation to the chemicals industry in Section 4.

On the question of who is mobile across European Member States, it is understood that professional and highly skilled employees are more likely to be mobile than other groups. As Salt points out, human expertise is a crucial requirement of modern industry. This makes some professional groups particularly valuable in what is an increasingly global marketplace. In relation to the chemicals industry, one would expect research and development staff and others involved in innovation, in areas such as engineering or marketing, to be particularly sought after.

Although there are problems in establishing the statistical presence of highly skilled employees as a proportion of mobile employees, as King points out, they are of strategic importance because of their economic and managerial power. Moreover, the demand for scientists, technicians and other highly skilled professionals is likely to rise, at least in the short to medium term. Therefore, a number of writers on the issue predict increased recruitment from peripheral areas of Europe or from less developed countries outside Europe.

Within Europe, competition for highly skilled staff is expected to intensify as multinational corporations seek to recruit staff from the same pool. As King states, this competition may be exacerbated by the falling birth rates in many European countries and by a preference among many young people for humanities or social scientific training rather than science or technology. This debate is pertinent to the research presented here because as O'Mahony, 1998, in a recent report on the economic performance of the European chemicals sector points out, the industry uses graduates and other skilled employees more intensively than manufacturing as a whole. Because the industry is heavily reliant on higher level skills, it could be argued that it would

benefit from free movement of skilled labour between EU countries, particularly when labour markets are tight or in times of rapid industrial growth.

Salt identifies a number of methods used by employers to obtain the expertise they require, including recruitment from the external market, from their own corporate internal labour market, from specialist firms and by acquiring new businesses. However, there has been little research on employers' practices in relation to recruitment of highly skilled employees, and it is likely that these vary greatly between industries. Further research is needed to identify the variety of strategies adopted by particular industries for specific occupations, and the place of international recruitment.

Writers on mobility have also discussed the nature of current and future mobility. In the absence of reliable statistics, much of this is speculative, but of interest nonetheless. Some research has identified a trend away from 'traditional' labour migration towards short-term stays for education, training, career development and business (see for example Salt, et. al., 1993; Salt, 1996; King, 1997 and Cedefop, 1998). This trend has been identified with particular regard to highly skilled employees. Existing research does not offer a clear explanation for the perceived move towards short-term assignments and away from longer-term relocation, although it does highlight some of the problems with longer-term staff relocation for companies, such as cost (See Salt et. al., 1993) and for staff, such as resettlement difficulties (Rolfe and Byre, 1995). Because of the financial and human costs of relocation, and also for reasons of 'political expediency,' Salt argues that some large corporations have entered a 'steady state' with respect to their use of highly skilled employees and are seeking to control mobility through decentralisation of decision-making and practising local recruitment where possible. We look at the evidence for this trend in our own research in Section 4.

It has recently been argued that information technology (IT) will increasingly reduce the need for physical movement, particularly among highly skilled employees, by enabling knowledge and skills to be acquired or imparted through e-mail or video links. Salt et. al. argue that, unlike low skilled manual labour which requires a physical presence in the performance of tasks, the main contribution of highly skilled employees is knowledge, which can be transferred across long distances without a physical presence. Straubhaar and Wolter, 1997, argue that the nature of work will itself change:

'....highly skilled employees will increasingly execute routine tasks world-wide via the 'cyberspace' or within the 'virtual company' (1997, 180).

While IT has undoubtedly transformed communication between and within multinational corporations, it is questionable whether it has substituted for face-to-face communication and collaboration in all areas of work. Moreover, even if it were possible to construct virtual teams, for example of researchers each in their remote locations, one might question whether this would be desirable or acceptable to employers. However, the impact of IT on mobility is certainly an

issue worth exploring and one which we therefore return to in Section 4 on employers' policies and practices.

3.3.1. The value of immobility

Existing research emphasises the benefits of a mobile labour force, particularly for employers, but also for employees. However, while the removal of barriers to mobility is clearly a positive development for European integration, there is also a down-side to mobility. We referred earlier to the costs borne by companies and to the human cost, which include adapting to a different culture and resettling in one's own country at the end of an assignment (see Rolfe and Byre, 1995). There is also some evidence that in some industries or occupations, immobility may have particular benefits. Fischer et. al., in a paper entitled 'Should I stay or should I go?', 1997, argue that immobility allows for local-specific knowledge and skills to be accumulated. These are not essentially economic, but largely cultural, linguistic, social and political.

Companies in the chemicals industry strongly value accumulated experience in company practices. This applies particularly to the production side, where process operators are recruited and given training by the company, rather than recruited ready-trained and qualified. Companies prefer this approach because it ensures that employees have knowledge and skill of direct relevance to the company and develop loyalty and commitment (see Rolfe et. al. 1994). Because each chemical plant and process varies, there are advantages to the company, and to the individual, of remaining in the same area of work, rather than moving to different operations. This is not, however, true of all occupations in the industry. As Cedefop points out, a stay abroad is increasingly considered desirable and seen by companies as a stage in a successful career (Cedefop, 1998, 45). We explore this issue in depth in Section 4.

3.3.2. Key points

(a) We had intended that this stage of the research would examine cross-border mobility within the chemicals sector of the European Union, exploring the main trends in mobility, variations between countries, characteristics of mobile citizens, and establishing any links between mobility in the chemicals industry and differences between national labour markets. However, this degree of analysis of a particular industry is not possible using current sources of data.

(b) Research on labour mobility within the EU is hindered by a lack of reliable data. This applies particularly to any attempt to examine mobility in particular industries, such as chemicals, or selected occupations. Problems include differences between Member States in the way data is compiled, and gaps where one might wish to make comparisons.

(c) Available statistics allow for some general observations to be made. Firstly, with the exception of Portugal, the entry of each country into the European Union has not resulted in increased migration; since the 1970s the number of EU nationals living in other Member States has remained almost static in some countries and fallen in others; fewer than 2 % of all workers in the European Union are employed in another Member State; and in most EU countries the share of EU immigrants is decreasing while the number of non-EU immigrants is increasing.

(d) Some research has identified a trend away from 'traditional' labour migration towards short-term stays for education, training, career development and business. It has been estimated that about a third of all regular EU migrants to Britain are through company transfers, which may also apply to other Member States.

(e) Previous research has questioned why levels of mobility are not higher than are currently recorded. One of the main reasons is believed to be the increase in trade, which has grown at a much faster rate within the EU than trade with the rest of the world. At the same time, the difference in levels of prosperity between European countries has become much narrower, reducing the incentive for migration.

(f) People who move between Member States to work are predominantly young and male. They are in a range of occupations, but the professions and manual trades, for example construction, are more strongly represented than those in intermediate positions.

(g) A positive correlation has been found between a worker's level of education and his or her probability of migrating. This has some relevance for our research because the chemicals industry employs a relatively high proportion of employees educated to degree level, particularly in research and in sales and marketing.

(h) It has been argued that information technology will increasingly reduce the need for physical movement, particularly among highly skilled employees, by enabling knowledge and skills to be acquired or imparted through e-mail or video links. The current research questions this theory.

(i) Existing research emphasises the benefits of a mobile labour force, particularly for employers, but also for employees. However, there is also a down-side to mobility, including the costs borne by companies and the human cost, which include adapting to a different culture and resettlement. There is also some evidence that in some industries or occupations, including chemicals, immobility may have particular benefits.

(j) Within Europe competition for highly skilled staff is expected to intensify as multinational corporations seek to recruit staff from the same pool. Therefore, a number of writers predict increased recruitment from peripheral areas of Europe or from less developed countries

outside Europe. This may affect the practices of the European chemicals industry. However, there has been little research on employers' practices in relation to recruitment of highly skilled employees, and it is likely that these vary greatly between industries. Further research is needed to identify the variety of strategies adopted by particular industries for specific occupations, and the place of international recruitment.

4. The chemicals and pharmaceuticals industry: employers' policies and practices

4.1. Introduction

In this section of the report we examine the attitudes and practices of businesses and representative institutions in a number of Member States. The focus of our discussions is on practice rather than policy or formal requirements because it is important to consider the role of qualifications in the overall context of recruitment, training and employment strategy.

Fourteen companies took part in interviews for the research. They were selected using the Worldscope database of company accounts which covers over 700 companies in the chemicals sector worldwide and about 400 in the EU. Their characteristics are summarised in Table 2:

Table 2: Features of the companies in the interview stage

Company number	Sector	National base	Employee numbers	Area of operations
1	Pharmaceuticals	UK	16 500	Worldwide
2	Chemicals/ Pharmaceuticals	UK	5 500	Europe-wide
3	Chemicals	UK	5 300	Worldwide
4	Pharmaceuticals	UK	2 736	Europe and USA
5	Chemicals	UK	1 800	5 Member States
6	Chemicals	UK	300	National
7	Chemicals/ Pharmaceuticals	France	68 400	Worldwide
8	Chemicals	France	27 600	Worldwide
9	Chemicals/ Pharmaceuticals	Germany	145 000	Worldwide
10	Pharmaceuticals	Germany	24 860	Worldwide
11	Chemicals/ Pharmaceuticals	Italy	2 500	Worldwide
12	Chemicals	Italy	2 494	2 Member States
13	Chemicals	Italy	2 000	National
14	Pharmaceuticals	Denmark	2 800	Worldwide

As Table 2 shows, the companies vary greatly in size. The smallest employs only 300 staff and is a subsidiary of a much larger company. However, it was intended that the research should focus

on larger employers, since it was envisaged that issues of European recruitment and qualifications would be of most relevance to these companies. Therefore about six of the companies researched employed roughly two or three thousand employees; two employed around 5 000; three employed around 20 000; and two were very large, employing 68 400 and 145 000. The companies also cover chemicals and pharmaceuticals, with some covering both sectors. This was to ensure that a range of types of industry was included and that the pharmaceutical sector was fully represented. This sector of the industry is known for its high skill base and innovation. It was therefore envisaged that issues of mobility and qualifications would be of particular relevance to these companies.

4.2. The perspective of representative bodies

Contact was made with representative bodies in eight Member States with a sizeable chemicals sector. These were Denmark, France, Germany, Greece, Italy, the Netherlands, Spain and the UK. We had intended to interview representatives of these organisations about their policies and activities in relation to qualifications and mobility of labour in the EU. Of the eight organisations, only the UK Chemical Industries Association took part in a full interview on the issue, although we had short discussions and correspondence with some others. The organisations were not unwilling to take part in the research but felt that they had little to contribute on the issue, particularly in terms of any policy or activity on either qualifications or cross-border movement. This is in contrast with such issues as environmental policy and practice where representative bodies are working closely with companies worldwide to sign up to 'responsible care' programmes. Some organisations did, however, feel that it is an issue with which they might become involved in the future.

4.3. The employers' perspective on mobility and qualifications

4.3.1. Occupational profile

As a first step we wished to establish what the key occupations are in the chemicals and pharmaceuticals industry and what qualifications are associated with these occupations. We found that the precise profile of occupations varied between the companies according to the sector of operations, their size and type of production. Of particular relevance was whether a company was involved in innovation and research and development, for example the fine chemicals and pharmaceutical companies, or whether the emphasis was on production and marketing, as for example in healthcare and household. Therefore, while occupations in the four categories below are found in all chemicals and pharmaceutical companies, the balance between them varies considerably, particularly according to the orientation towards research or towards sales and marketing.

The main occupations in the companies we interviewed fall into four broad groups:

(a) production: process operator, packers, maintenance engineers, chemical and biomedical engineers and other engineering specialists, managerial staff;

(b) research and development: laboratory-based technician, scientific researcher, research manager;

(c) sales and marketing: field-force and on-site sales and marketing specialists;

(d) administrative and support: including staff in finance, information technology and personnel occupations.

4.3.2. Sources of recruitment

Although four occupational areas were identified, our principal interest was in what might be termed 'chemical and pharmaceutical occupations'. Our discussions with companies, therefore, largely excluded occupations in administration and support. Companies were asked about their main sources of recruitment for the key occupations, in particular whether they are local, national or international. From their answers we can divide companies into two broad groups:

(a) those who recruit locally wherever possible and meet most skill requirements through this strategy, but use national recruitment for more senior positions, particularly research and development and senior sales;

(b) those who recruit locally for production staff and for routine white-collar positions, but more widely for research and development, sales and marketing and management positions. National level recruitment is commonly practised, alongside international recruitment for scientific researchers and other specialists.

Companies in the first group were generally those with a relatively small research base, involved, for example, in the production and marketing of healthcare and household products or plastics. Companies in the second group were more usually found in the fine chemicals or pharmaceutical sector with large and 'leading edge' research divisions. However, this is not a clear cut division because a number of companies in the second group had a policy of favouring local or national recruitment over international. As one company explained, 'the Managing Director is French and wishes to maintain the company viewpoint and principles by employing French staff.'

It is also a common practice in the industry to recruit or promote internally. Companies reported that senior staff on the production side often enter the company as process operators and are promoted to more senior positions as they gain experience, knowledge and, sometimes,

qualifications. It is not usual for companies to recruit production staff, such as process operators, ready-trained and qualified, they prefer to train new employees in the company's own processes, practices and 'culture.'

It is also common practice among employers in the industry to recruit from the family and friends of current employees. Although this is bad practice in terms of equal opportunities, it is defended by employers as a response to recruitment difficulties. The industry suffers from a negative image, particularly in terms of health and safety, but relatives and friends of employees are more aware than others of the positive aspects of working in the industry, which often include relatively good pay and conditions of employment. This practice cannot be used, however, to recruit more highly skilled staff, whom companies must attract from a wider area.

4.3.3. The requirement for formal qualifications

For junior level jobs, including many in the production area, formal qualifications are often not required either on entry or for advancement. The emphasis is on competence and experience in the company's own processes and practices. Therefore, individuals are recruited if they show the desired attributes, which include 'maturity' and trustworthiness. Companies usually have their own internal training schemes, in which the emphasis is on competence and the application of knowledge and skills. In the past, many chemical and pharmaceutical companies did not provide 'training to qualifications' so that many skilled and experienced staff did not have formal proof of their achievements and skill levels. This has changed during the 1990s and companies have increasingly adopted more formal systems of training and qualification systems and structures. However, qualifications are still not an entry requirement for many jobs on the production side and for internal recruitment and transfer, experience is the main criterion.

At the same time, many occupations in the sector are highly skilled and specialised and require knowledge and skills at graduate level. This applies particularly to research posts, but also to sales and marketing positions for which companies often require a degree relevant to the sales area (for example medical science, biology, biochemistry). A strong research base, therefore, raises the general skill and qualification requirement of a company, with some companies reporting 50 % or 60 % of staff at first degree level or higher.

4.3.4. Availability of jobs to foreign nationals

Most companies emphasised that all jobs are 'in theory' open to foreign nationals from all Member States. However, in practice, most staff are recruited locally, some nationally and few

internationally. The main reason for this is cost, and the generally healthy flow of skills at local and national level. Interviews included companies in Germany, France, Italy and Denmark and none reported serious difficulties in recruiting staff at production level and most other areas.

While some companies reported a preference for local and national level recruitment for broadly 'patriotic' reasons, in most cases it is largely a question of ease and cost. The well-structured internal training systems established by most companies mean that they are not reliant on a supply of skilled labour, but can generally meet their own skill needs. Although skill shortages are not widespread, some companies said they experienced skill shortages in areas such as chemical engineering, as a result of turnover of trained staff, often through 'poaching' by other employers. However, they were still reluctant to recruit internationally to address the need for skilled staff.

A different approach is followed in relation to research staff, where it is not at all unusual for companies to recruit internationally. As a representative of a French company with a strong research base explained:

'We recruit internationally for research because this widens the search for the best scientific solutions. We have skills shortages in some areas, such as bioinformatics and look to Europe and beyond to recruit these staff because they are in such short supply.'

Few companies advertise internationally as a purposeful strategy. However, many attract applications from foreign citizens because some vacancies, particularly scientific or research posts, are advertised in scientific journals which reach international job-seekers. Where international recruitment *is* actively pursued, it is usually because someone with a particular specialisation is needed. Because these are known to be small in number, methods such as 'head-hunting' through specialist agencies are used or contacts used in particular universities.

However, there is evidence that changes are taking place as a result of internet advertising. Many of the case study companies advertise career opportunities and vacant posts on their company internet site. Many of these sites welcome speculative applications and curricula vitae. A few companies referred to this practice as an explanation for recent increases in applications from other Member States. The practice of internet job advertising will undoubtedly increase and it is possible that it will result in higher levels of international recruitment.

4.3.5. Recruitment or transfer of employees across Member States

When exploring the extent of recruitment from other Member States, it is important to distinguish between recruitment of new employees and transfer of existing staff. As we explained in Section 3, transfer through an employer may account for a substantial proportion of

mobility, estimated at one third. In the chemicals industry, transfer, of existing staff is a far more common practice than recruitment from other Member States, for all types of staff. Most companies transferred staff for varying periods of time to operations in other Member States, and also to America and other non-European countries. At the same time, external recruitment from other Member States was largely confined to particular occupational groups and was not extensive. It is, therefore, likely that transfer, rather than external recruitment, accounts for most mobility in the industry.

As we have explained, it is usual for companies to recruit staff locally and for these to be trained and promoted by employers. With the exception of research and management posts, it is not usual to recruit ready-trained and qualified staff. In line with this, there is little movement between chemical companies, except for some 'poaching' of professional staff.

Where employees are recruited from other Member States, these are in most cases research scientists. Companies in the pharmaceuticals sector recruit research staff from other Member States and further afield. These are often individuals with scientific expertise in specific areas, usually post-doctoral research staff in universities or research institutes. Although they are sometimes recruited through advertisements, they are also introduced to the company through its involvement with research groups and participation in meetings and conferences at European and international levels. Recruitment to research posts is therefore conducted differently to other positions. As a representative of a French company explained:

'When it comes to research we need quite specific scientific skills so we try wherever possible to ignore geographical boundaries and we often recruit from across Europe.'

For many scientific researchers from mainland Europe, the UK and the United States are seen as good locations for career development because of the presence of large companies and strong scientific communities.

Transfer of staff usually involves a different group of employees. Transfer between Member States is, in general, much more widely practised than recruitment from other Member States. Staff involved are not researchers, although these are sometimes transferred in order to share skills and gain experience in new techniques. Management is the main group involved in staff transfers. In some cases these are managers or technical experts in specialist areas, transferred for a short period to acquire or impart expertise. This might include helping to set up a plant or division in a new location. However, in most cases the principal reason for staff transfer is for general development at senior management level. A period of experience in a different international division of the company is seen as beneficial both for individual development and for the company, in equipping senior managers with broader knowledge of operations and familiarity with a wider range of senior-level colleagues. As a representative of a British company pointed out:

'Senior sales and operational staff are transferred for their own career development and also for the good of the company – it's difficult to separate the two.'

In contrast, more junior staff working at production level or in technical functions, have little to gain from temporary transfers. As a representative of a French company explained:

'There is much less enthusiasm among technicians, for example, in moving around Europe. It's hard to see how it would really benefit them because they develop their skills through experience in their own area of work. In fact, it could put them at a disadvantage because a break from their work could mean that they miss out on new developments or lose their skills.'

A number of companies referred to unwillingness of non-professional level staff to move, even within the same country, and considered it unlikely that this would change in the short term. As a representative of a British company remarked:

'Some of our employees wouldn't even contemplate moving twenty miles down the road and would find moving from the North to the South (of England) a massive culture shock, so they aren't likely to apply for a job in Germany.'

Transfer of staff is most commonly practised for managers in such areas as production, marketing and finance. The length of transfer varies, but it is usually of around three years. 'Trouble-shooting' transfers, by their nature tend to be much shorter.

There are two further types of staff transfer. The first of these is training for new recruits on a management training programme, which usually involves placements of around six months. This is practised for similar reasons to the longer periods of transfer for senior staff, to gain experience, particularly in company practices, procedures and 'culture.' The second type is temporary work experience. A German company explained that the British division of the company takes about 12 such recruits each year and these are with the company for varying periods of between eight weeks and six months. In most cases they are relatives or friends of employees. The British representative of the company was very critical of this practice, regarding it as no more than a 'perk' to employees and their families and a drain on company resources. Few of these temporary employees apply for permanent positions within the company.

Only a small number of the companies interviewed were involved in any European initiatives aimed at promoting mobility among researchers, students or other groups. Those involved were very large companies with worldwide operations and a strong European presence. In both cases they were involved in training graduates on company programmes. In one case this was through a Leonardo initiative.

4.3.6. Who is mobile and between which Member States?

We asked companies about the characteristics, in terms of age and sex, of mobile employees. Almost all respondents characterised these employees as generally under 35 years old and male which they explained with reference to the type of job which involves temporary transfer. As we have shown, these are generally senior management posts which in the chemicals sector are held predominantly by men.

With regard to international recruits, rather than transferred employees, some companies reported that these are younger, aged in their twenties and thirties, and both male and female. Again, this reflects the profile of scientific researchers.

Companies were also asked about which countries are involved in transfers of staff or mobility programmes. Not surprisingly, these are the countries where the company has its main sites. Therefore, in some companies mobility is more common outside Europe, particularly to the United States, because of the structure of the business and importance of the American operations.

4.3.7. Has information technology reduced the need for cross-border recruitment?

In Section 3 we discussed some issues raised in debates about cross-border recruitment and mobility, including the influence of information technology (IT) on company practices. We raised this issue with the companies interviewed to obtain their perspective. IT was seen to have a number of influences on recruitment and location decisions. Firstly, it has implications for the location of teams, particularly of researchers. This is because research results can be analysed at the most convenient location as results can be communicated fully and instantaneously through IT from wherever experiments or clinical trials are conducted. This reduces the need to transfer researchers between Member States or further afield, for example to locations where clinical trials are being conducted, although it cannot substitute for laboratory-based team-working. Some companies have 'virtual' research and development teams involving researchers in different sites. Companies also reported improved links between specialists in universities and research institutes, both through 'virtual' meetings, but also through frequent communication of research ideas and results through e-mail contact. As a representative of a Danish company explained:

'We are working with psychiatrists all over the world to develop our products. We hold regular virtual meetings and then arrange actual meetings to discuss projects, funding and new products.'

However, it was widely agreed that while IT may reduce the need for shorter visits and meetings, it has no effect on medium and long-term transfers of senior staff because these need to be *in situ*

in order to gain experience and understanding of company operations. As one German company stated:

'Despite developments such as centralised call-centres to provide product information, physical movement of staff for meetings or temporary assignments are still important, particularly given the importance of greater understanding of cultural issues which might arise, for example, when company divisions are reorganised or jobs changed and personnel issues need discussing.'

On balance, therefore, IT was not generally seen as having the potential to replace current staff transfer practices, although it has certainly increased the frequency and extent of communication between operations in different Member States.

With regard to recruitment, rather than transfer, of staff, a somewhat different picture emerged from the research. Here, IT was seen as increasing international recruitment by improving access to information about jobs advertised on company websites. As we explained earlier, many companies advertise career opportunities and actual vacancies on the internet. This, alongside other information sources, such as EURES, the internet-based European employment service, is likely to lead to increased applications across Member States.

4.4. Qualifications - recognition and common standards

A central aim of the interviews was to explore the question of how employers deal with applications from citizens of other Member States. In particular we wished to establish whether foreign qualifications are at the required level for particular vacant posts or career paths, and whether companies have information on foreign equivalents to their own national qualifications.

Almost all companies said that they often would not know whether an applicant's qualifications are equivalent to the national qualification required for the job. However, despite widespread uncertainty, they all had ideas about how this information might be obtained. In many cases, responses to questions on this issue were hypothetical because, with the exception of research, companies received few applications from citizens of other Member States.

Methods of validating an applicant's qualifications included the following:

(a) asking colleagues with knowledge of qualifications in the country in question;

(b) contacting company personnel or training managers of other professionals in the country in question;

(c) using the services of a consultant or recruitment agency with knowledge of international educational and vocational qualifications.

The favoured approach was to make enquiries internally, either in the country of application or sometimes in the applicant's own country of origin. However, there was no evidence of a clear strategy. As a large German company explained:

'I'm not sure what we would do. We would have to verify them somehow, by making enquiries within the company or to the corporate group'.

A respondent in the UK office of another large German company explained that the company is 'fairly familiar' with the qualifications issued in some Member States, but that '...beyond German and French qualifications, we would have a struggle to know what their qualifications were...'

A number of companies, therefore, found it necessary to use the services of outside consultants to obtain information about qualifications. As the London office of a French company explained:

'We are sufficiently *au fait* to know whether someone's qualifications are generally suitable for the job they're applying for, but if we were unsure, we have an expatriate link to KPMG [management consultants] who deal with some of the administration over staff transfers and we would ask them.'

Although companies had a number of ideas about how they might establish the level of an applicant's foreign qualifications, many had not dealt with the issue in practice. Those who had, saw it as a more complex and not always easily resolved because the precise equivalent is not necessarily obvious. As a Danish company explained:

'When we have applications from outside Denmark we have to know a little more about their qualifications than we would from Danish applicants. This is particularly if they are applying from some southern European countries. It isn't always clear what a 'doctor of science' is, for example, is it a PhD, an ordinary degree or a masters? We have to do things like look at the time-scale, at articles they have produced. We also look at the project they have been doing which will tell us what they must know in order to have done that project.'

As we explain below, the extent of enquiry necessary to establish whether an applicant's qualifications are valid could put them at considerable disadvantage in the selection process.

4.4.1. Qualifications for research

In general, applications for research posts were seen as the least problematic. It was generally thought that scientific qualifications are 'international,' particularly PhDs, which is the standard requirement for entry to scientific research in the industry. Moreover, these applicants, or their departments and teams, are often known to the company. Therefore, an individual's capabilities and potential can be fully established in discussions with their supervisor or head of department.

The more specialised their skills and the skills required by the company, the easier it is to establish an applicant's suitability.

With the important exception of research, companies were generally uncertain about how to verify foreign qualifications and none had heard of any list of equivalents, even though these exist. To some extent this reflects the industry's interest in experience rather than formal qualifications for many jobs. Therefore, a number of companies said they would use the applicant's curriculum vitae to assess their skills, competence and potential. Qualifications might only be used as an additional guide.

4.5. Are there any common qualification standards in the European chemicals industry?

It was widely agreed that there are no common qualification standards within the industry in Europe for jobs below degree level. This is not because of poor coordination between the relevant training and qualification authorities of Member States. It stems from difficulties in establishing common standards at national level. As a representative of a French company in Britain remarked:

'At the level of process operator there isn't even a qualification standard in **this** country, never mind throughout Europe.'

One important issue is the different emphasis on systems based on competence, such as national vocational qualifications (NVQs) in Britain and exam and assignment-based systems which operate in other Member States. It is difficult to ensure precise compatibility between these systems and there is likely to be opposition from the industry to attempts to bring either system into line with the other.

For jobs requiring a degree it is easier to establish equivalent qualifications, but most respondents said that even this is difficult. One difficulty is the comparison between German degrees and those studied elsewhere. As a German company stated:

'The German degree is seven years of study and experience and, in comparison to German graduates, British ones are still wet behind the ears by the time they've graduated.'

It was generally agreed that the only broadly equivalent qualification is PhD, for which similar standards apply across Europe and beyond. As a Danish company stated:

'Only PhD is a quality guarantee. It is an international standard in a way that an ordinary degree is not.'

Companies were asked if cross-border movement and recruitment would increase if measures were taken to improve recognition of qualifications between Member States through greater transparency. Their responses were mixed, but three main points were made:

(a) yes, qualifications are currently a barrier to cross-border recruitment;

(b) no, qualifications are not a barrier because cross-border recruitment is limited by other factors, including costs, language and 'culture' (see later);

(c) qualifications are not a barrier because experience, particularly within the company, is considered more important (see earlier).

Although only a minority of companies said that qualifications are currently a barrier, these were companies with experience of receiving applications and of recruiting from across Member States. Many of those who said they were not a barrier were not actively engaged in cross-border recruitment. The companies who considered qualifications a barrier talked about company 'confidence' in recruiting and how this can be undermined by lack of familiarity with an applicant's qualifications. It was argued, therefore, that companies would be more confident about recruiting across borders if equivalent qualifications were known and understood. This lack of confidence and degree of uncertainty has real implications for applicants applying to work in other Member States, because it can reduce their chances of selection. As a British company explained:

'Sometimes we are a bit baffled about the qualifications an applicant puts down on their application form and when we target-score applicants we could mistakenly give too few points for their qualifications simply because we aren't certain about the level they are at. So it could mean that we underestimate an applicant's ability and suitability for the job, and don't short-list or interview them. This obviously means that both individuals and the company can lose out.'

A representative of a Danish company saw this as a problem for job applicants themselves, stating that:

'It would be easier for an individual to move countries to work if they knew they had the right qualifications. Young people like to go abroad to work and it would be easier if they could see if they were qualified for jobs on offer in other countries.'

4.6. Measures to promote mobility

Companies were asked whether any of the following measures would help to increase cross-border recruitment and mobility:

(a) common qualification standards for particular occupations within the European chemicals and pharmaceuticals industry;

(b) a personal skills card (proposed in a European white paper) showing skills and qualifications;

(c) common European currency.

Only a small number of companies were of the view that common qualification standards would help, but most were more concerned to have better access to information on foreign qualifications. This finding endorses the European Commission's approach of encouraging transparency of qualifications rather than having direct comparisons.

The idea of a personal skills card, as proposed in the European white paper on education and training, was favoured by a small number of companies, but not strongly. A representative of a Danish company explained that a number of large Danish companies are developing a skill classification of their staff worldwide using a five scale model based on the five levels of education in Denmark. This is being driven by the growing practice of including data on workforce skills in company annual reports and the need to present this data in a standard format.

Some companies said there is no need for a personal skills card because they use an application form which asks for information in a standardised way. They would continue selecting employees using this method even if a personal skills card was widely used by applicants. Some companies raised the issue of experience, referred to earlier, expressing the view that information on skills and qualifications is of less interest to them than information about their experience. They did not believe that such information could be summarised satisfactorily on a personal skills card.

Many companies were reluctant to express a view on the possible effect of a common European currency, but it was generally believed that any influence would be minor and principally of help in making financial and administrative arrangements for staff transfer.

No company felt that any of the measures presented to them would result in significant increases in cross-border recruitment and mobility. This was largely for reasons referred to earlier. They include:

(a) the ability of companies to meet most of their skill needs at local and national level;

(b) the relatively small number of applications received from citizens of other Member States;

(c) the importance of experience and reputation over formal qualifications.

Finally, we asked what factors other than qualifications affect movement. We know from earlier research that employers encounter a range of problems or obstacles to transfer of employees (Rolfe and Byre, 1995). This earlier research identified five main such obstacles as follows:

(a) compatibility of pension provision and arrangements,

(b) tax and social security payments and provision,
(c) resettlement of the posted employee on return,
(d) spouse's career,
(e) cultural problems and the experience of isolation.

The current research received a similar response from questions to employers about the barriers to staff transfer, which applied to some extent to recruitment across borders. Most of these concerned barriers to employees rather than difficulties for the company.

A number of companies referred to issues of housing, pensions and education systems, particularly in relation to staff transfer. The issue of cultural integration was raised a number of times, in relation to both transfer and recruitment. Mobile employees are often senior and highly valued and companies are concerned that they should be happy and well-adjusted to their new life. As a representative of a Danish company explained, this is important for the employee and for the company:

'Socialising is important and about three or four times a year we hold events for expatriates and their families. Without this kind of thing staff can get very lonely. It is a responsibility for the company too, because if staff are not happy then they won't perform and we have to deal with their problems and the effects of those problems. So, for example we are holding some before Christmas events for expatriate staff and their families, so that for example a Spanish employee can meet other staff from Spain and their partner, enjoy themselves and feel more at home.'

Although it would be hard to deny the importance of integrating international recruits, many companies felt that cultural barriers are not substantial, at least in the workplace. This was expressed particularly in relation to research. As a representative of a British pharmaceutical company stated:

'Culturally the pharmaceutical industry is broad-based in terms of culture, so there are few real differences or barriers, particularly in the research community.'

However, some companies did refer to differences in management style or approaches to work by different nationalities which could sometimes lead to tension in working relationships. This was raised in relation to British and German management styles which are seen to vary greatly in formality. This was not, however, seen as a serious obstacle to transfer or international recruitment.

Some companies raised the issue of language and here some diverse views were expressed. A number of British companies considered it a barrier to British applicants seeking jobs in other Member States or accepting an international transfer. At the same time, many respondents, particularly in the pharmaceutical sector, said that language is not a barrier, because the international language in the sector is English.

Finally, a small number of companies referred to the structure of their company as a barrier to international recruitment and transfer. In particular, some large companies, while having a base in many European countries, are not coordinated at European level and do not have Europe-wide functions. This was thought to be changing in line with greater integration across Europe generally.

4.6.1. Key points

(a) The research findings in this section are based on interviews with personnel managers of 14 chemicals and pharmaceutical companies. These included companies under British, French, German, Italian and Danish ownership. These were predominantly large companies, many with a strong research base. Larger companies, and those with a pharmaceutical division, were included because their strong research base and their need for highly skilled staff could increase the importance of international recruitment.

(b) Some information was obtained from representative bodies for the chemicals industry throughout Europe. However, this was less than intended because these organisations have not looked in any depth at the issue of recognition and transparency of qualifications and labour mobility. Some organisations feel that it is an issue with which they might become involved in the future.

(c) Most companies emphasised that all jobs are 'in theory' open to foreign nationals from all Member States. However, in practice, most staff are recruited locally, some nationally and few internationally. The main reason for this is cost, and the generally healthy flow of skills at local and national level. Some companies have a policy of favouring local or national recruitment over international, for 'patriotic' reasons.

(d) Companies divide into two broad groups in terms of their recruitment practices:

  (i) those who recruit locally wherever possible and meet most skill requirements through this strategy, but use national recruitment for more senior positions, particularly research and development and senior sales;
  (ii) those who recruit locally for production staff and for routine white-collar positions, but more widely for research and development, sales and marketing and management positions. National level recruitment is commonly practised, alongside international recruitment for scientific researchers and other specialists.

(e) It is common practice in the industry to recruit or promote internally. It is not usual for companies to recruit production staff, such as process operators, ready-trained and qualified, they prefer to train new employees in the company's own processes, practices and 'culture.'

(f) It is also common practice among employers in the industry to recruit from the family and friends of current employees. This is often a response to recruitment difficulties, although it is bad practice in terms of equal opportunities. This practice cannot be used, however, to recruit more highly skilled recruits, whom companies must attract from a wider area.

(g) The important exception to this approach is the recruitment of research staff. Particularly at senior level, these are frequently recruited from other Member States, including from universities and research institutes.

(h) There is evidence that company recruitment practices are taking place as a result of internet advertising. Many of the case study companies advertise career opportunities and vacant posts on their company internet site and welcome speculative applications and curricula vitae. This, alongside other information sources, such as EURES, the internet-based European employment service, is likely to lead to increased applications across Member States.

(i) When exploring the extent of recruitment from other Member States, it is important to distinguish between recruitment of new employees and transfer of existing staff. Transfer of existing staff is a far more common practice than recruitment from other Member States. This form of mobility does not usually involve issues of recognition of qualifications.

(j) Management is the main group involved in staff transfers. In some cases these are managers or technical experts in specialist areas, transferred for a short period to acquire or impart expertise. The length of transfer varies, but it is usually of around three years. 'Trouble-shooting' transfers, by their nature tend to be much shorter.

(k) A number of companies referred to unwillingness of non-professional level staff to move, even within the same country, and considered it unlikely that this would change in the short term.

(l) Mobile employees were reported to be generally under 35 years old and male, because of the type of job which involves temporary transfer. These are generally senior management posts which, in the chemicals sector, are held predominantly by men.

(m) International recruits, rather than transferred employees, are younger, aged in their twenties and thirties, and both male and female. Again, this reflects the profile of scientific researchers.

(n) It was widely agreed that, while Information Technology may reduce the need for shorter visits and meetings, it has no effect on medium and long-term transfers of senior staff because these need to be physically present in order to gain experience and understanding of company operations.

(o) There are no common qualification standards within the industry in Europe for jobs below degree level. This stems from difficulties with establishing common standards at national level. For jobs requiring a degree it is easier to establish equivalent qualifications, but even this is difficult. The only broadly equivalent qualification is PhD, for which similar standards apply across Europe and beyond

(p) Almost all companies said that they often would not know whether an applicant's qualifications are equivalent to the national qualification required for the job and relied largely on internal information sources. The problem did not arise often, however, because, with the exception of research, companies received few applications from citizens of other Member States.

(q) Companies were asked if cross-border movement and recruitment would increase if measures were taken to improve recognition of qualifications between Member States. Many companies did not think this would happen because cross-border recruitment is limited by other factors, including costs, language and 'culture.' In addition, many did not see qualifications as a barrier because experience, particularly within the company, is considered more important.

(r) Companies would be more confident about recruiting across borders if equivalent qualifications were known and understood. However, it was not generally thought that common qualification standards would lead to an increase in international recruitment. This endorses the European Commission's approach which emphasises transparency rather than comparability of qualifications.

(s) No company felt that measures including common qualification standards, a common European currency or a personal skills card would result in significant increases in cross-border recruitment and mobility. This was largely because companies are currently able to meet most of their skill needs at local and national level; with the exception of research, they receive only a small number of applications from citizens of other Member States; and for many jobs experience is more important than formal qualifications.

(t) A number of companies referred to issues of housing, pensions and education systems, particularly in relation to staff transfer. The issue of cultural integration was raised a number of times, in relation to both transfer and recruitment. It was, therefore, felt that a number of important barriers still exist for employees considering moving to another Member State to work.

5. Conclusions

5.1. Introduction

Barriers to cross-border movement have fallen as a result of a series of legal and other measures aimed at promoting mobility and creating a genuine union of European states. However, at the same time, employees throughout Europe have increasingly needed a 'passport' of qualifications for employment and progression in their own countries and outside. In some Member States, the range of qualifications for some industries and occupations proliferated during the 1970s and 1980s, sometimes leading to bewilderment among employers about what level of competence might be expected from applicants with various qualifications. It would not, therefore, be surprising if employers did not understand the qualifications of an applicant from another Member State. The possible consequence, in rejection of potentially suitable employees, is a matter of concern.

Little is known about the attitude of employers towards qualifications awarded in other Member States, including whether European employers know if the qualifications held by applicants from other Member States are equivalent to those they require of their own citizens. This is not known either in general or in relation to specific industries, such as chemicals. Our research, therefore, aimed to meet the need for information on this key issue in European policy. It addressed a number of questions about recognition of qualifications, including: do employers understand qualifications awarded in other Member States; do they seek to recruit citizens of other Member States, or receive applications from them; and how are applicants' qualifications understood and verified?

This research has addressed these issues in relation to a key European industry, chemicals and pharmaceuticals. At the outset it was thought that the chemicals industry might benefit greatly from mobility of employees within the EU, but this could be restricted by employers' lack of knowledge about 'foreign' qualifications.

The aims of the research were to explain the current situation in the chemicals industry with regard to recognition of qualifications and, secondly, to identify the obstacles to recognition of qualifications. A third aim was to identify the key areas for future action and possible measures to promote greater recognition and transparency of qualifications. We address this aim in this concluding section of the report.

5.2. What is known about mobility in the European Union?

The general picture shown by statistics of mobility at European level is of a small and fairly constant level of movement between Member States. This has not increased in the course of the 1980s and 1990s as many had expected it would (see Appendix 3). The reasons for this have

been explored in the literature on labour mobility, and are believed to include the narrowing of differences in income, which has reduced the incentive to migrate, and the substitution of trade for labour mobility. However, there is very little research which addresses the issue at anything but a general level by, for example, examining mobility in a particular industry or occupation. A possible explanation for this is the limitations of statistics on mobility, which enable only general patterns to be identified.

We had intended to examine cross-border mobility within the chemicals sector of the European Union, exploring the major trends in mobility, variations between countries, characteristics of mobile citizens, including occupation, age and sex. However, this degree of analysis in a particular industry is not possible using current sources of data. Problems include differences between Member States in the way that data is compiled, gaps where one might wish to make comparisons and samples sizes which make statistical analysis at industry level unreliable.

Research on labour mobility within the EU is, therefore, hindered by a lack of reliable data. This applies particularly to any attempt to examine mobility in particular industries, such as chemicals, or by occupation. Because of the lack of detailed statistical data at European level, research on patterns of mobility has looked at aggregate movements, or used the more detailed datasets of particular nation states to look in more detail at the characteristics of employees who have moved countries to work. However, this research tells us little about these employees, other than broad generalisations, such as they are more likely to be highly skilled professionals.

To our knowledge, there are no studies which look at which industries are most involved in recruiting and transferring employees between European countries, and which occupations are involved. In the absence of existing datastets, detailed information about movement between Member States can only be obtained through new surveys. A large scale survey of employers in the chemicals industry was beyond the scope of our research. However, we believed that qualitative research with selected employers would allow us to identify their practices in relation to international recruitment and their experiences and views on transparency and recognition of qualifications. Therefore, while our study cannot say how widespread the policies and practices are which we identify, it identifies what are probably the main issues to employers and the range of approaches within the industry.

5.3. Who is mobile, and why?

As we stated above, the findings of existing research suggest that mobility is more usual among professional and highly educated groups. It has also suggested that there is a trend away from actual migration, which involved movement of unskilled job-seekers from southern to northern European countries, towards shorter term stays for education, training, career development and business. Our findings suggest that this is broadly true in relation to the chemicals industry: where companies recruit from other Member States, these are usually highly skilled research staff, often qualified to PhD level. Other movement is through transfer rather than recruitment,

and usually involves senior management undertaking short or medium-term assignments to gain experience or to 'trouble-shoot.' There is little movement below management or professional level for reasons of both demand and supply. Chemical companies do not feel the need to recruit production, technical and support staff internationally and receive few applications at this level. At the same time, companies report a reluctance among non-professional staff to relocate.

It has also been argued that information technology is reducing the need for physical movement. However, while these arguments are presented in the literature, they do not have a strong base in research. In fact, there is very little primary research on the issue explaining how the roles performed by mobile employees could be carried out using information technology. Our research suggests that information technology is not reducing the need for the kind of mobility which takes place in the chemicals industry. It is improving communication between distant sites and team members which might even lead to greater mobility.

5.4. Why are levels of mobility low?

Information from our interviews with chemicals companies suggests that levels of mobility between Member States for employment in the industry are not high. From the statistics available, it is apparent that the industry is not unusual in this respect and that mobility between Member States is low. In chemicals, with the exception of research, recruitment of citizens of other Member States is unusual although, as we have explained, transfer of staff is more commonly practised.

Chemical companies recruit individuals to train in company processes and practices. They generally meet their own skill needs, with the exception of scientific expertise. Companies recruit production staff and technicians at local level, and often from the family and friends of employees. Although this is not good practice in terms of equal opportunities, it has been defended as a response to recruitment difficulties which arise from the poor image of the industry. Chemicals companies provide structured training systems for new and experienced employees which emphasise competence rather than formal qualifications. Indeed, they regard the experience gained in their own systems as more important than external qualifications. Therefore, employees rarely move between companies but build up experience and expertise with the same employer. The industry therefore values immobility in most of its occupations. This may not apply in other industries to the same extent, and it is possible that many industries value mobility as a way of introducing new skills and ideas. Future research should aim to establish the relative value attached by employers to mobility and immobility and the implications of this for future patterns of movement.

Although chemical companies are able to meet their needs for production staff and technicians locally, they also recruit nationally. Moreover, they generally express a willingness to recruit citizens of other Member States. However, they say that they receive very few job applications from citizens of other Member States, particularly those who are still resident in their home

country. In the absence of survey research on individuals, we do not know why this is. As we stated above, research has given broad, socioeconomic explanations for the low level of mobility between Member States and our research suggests that non-professional employees in the chemicals industry may not have an incentive, in terms of career progression. However, the views of employees on the issue are not known. At an individual level, a range of incentives and disincentives may interact to encourage or discourage mobility. It is possible that barriers, including concerns about recognition of qualifications, may discourage individuals from applying for jobs for which they are suitable candidates. In order to promote greater mobility we need to reach a clearer understanding of what these barriers are.

Some of the reason for the low level of application may be easily resolved, for example if citizens do not have easy access to information about job vacancies. Although companies say that they do not receive applications from citizens of other Member States, they do not generally advertise job vacancies internationally. This is because they have no reason to fund the costs of international advertising when they can meet their skill needs locally or through national recruitment. However, we found that many companies are now advertising job vacancies on their internet websites and it is possible that this will encourage citizens of other Member States to apply.

5.5. What is the role of qualifications in enabling or discouraging mobility?

There are no common qualifications standards within the chemicals industry in Europe for jobs below degree level. This stems from difficulties with establishing common standards at national level. For jobs requiring a degree it is easier to establish equivalent qualifications, but even this is difficult. The only broadly equivalent qualification is PhD, for which similar standards apply across Europe and beyond.

The employers interviewed said that on occasion they did not know whether an applicant's qualifications were equivalent to the national qualification required or preferred for the job. When this happened, they usually relied on internal information sources and occasionally management consultants. The problem did not arise often, however, because, with the exception of research, companies received few applications from citizens of other Member States. However, if mobility does increase in the future, it is important that applicants are not put at a disadvantage by recruiters' ignorance of their qualifications. One employer acknowledged this could happen if the level of an applicant's qualifications were misunderstood and underrated.

Companies were asked if cross-border movement and recruitment would increase if measures were taken to improve recognition of qualifications between Member States. Many companies did not think that mobility would increase through such measures and felt that it is restrained by other factors. These include costs to individuals and companies, language and 'culture.' Moreover, many did not see qualifications as a barrier because experience, particularly within the

company, is considered more important for many jobs in the industry. It was, however, apparent that employers might feel more confident about recruiting some types of applicants, for example technicians, if equivalent qualifications were known and understood. Therefore a distinction was drawn between the role which common qualifications might play in increasing applications and recruitment on the one hand, and making it easier to recruit people with 'foreign' qualifications when they apply.

5.6 Measures to enable and promote mobility: are they sufficient?

The right to free movement has been established through a number of directives dating back to the founding of a European Economic Community. In recent years it has been extended and reinforced. In terms of practical measures to promote mobility, a number of programmes and services have been established since the late 1980s with this aim, including a series of education and training and mobility programmes such as Socrates and Leonardo. These include initiatives to promote future mobility via the international exchange of students and teaching staff. A programme on *Training and Mobility of Researchers* (TMR) has been highly relevant to the industry, *Marie Curie Fellowships* were established to promote mobility and cross-European collaboration in chemistry research, and these have resulted in a large number of eligible applications. It is important that these initiatives and schemes continue, because the individuals involved may choose to work across Member States on completion of their training and may, in turn, encourage others to seek training and employment elsewhere in Europe.

The European Commission believes there are still significant obstacles to people working in another Member State and that further action may be necessary to promote labour mobility, focused on the need to improve transparency. The Commission has identified information as an important issue in promoting mobility. Some research identifies a key issue in mobility as the information costs – with these being less for professionals with access to information about living and working in other Member States. To address the need for greater transparency, a network providing information on employment opportunities to citizens interested in mobility, the EURES network (EURopean Employment Services), was established in 1994 to bring together the public employment services of all countries belonging to the European Economic Area (EEA) as well as other regional and national bodies concerned with employment issues. Its three basic services are information, guidance and placement of individuals seeking employment in another country in the EEA. Information is clearly essential to the promotion of mobility. At the same time, other barriers identified by employers and in earlier research (see for example Rolfe and Byre, 1995), including housing, pensions and education systems, must continue to be addressed.

5.7. Providing information to employers

Employers' reluctance to recognise the validity of vocational qualifications obtained in another country is seen as a major obstacle to the free movement of workers within the EU. However, in general, employers in our study were not concerned about the validity of 'foreign' qualifications. The main reason for this is that they carried out very little recruitment at international level, received few applications from citizens of other Member States and the issue of these qualifications, therefore, did not often arise. However, this should not be seen as a reason to take no action. If other remaining barriers to mobility, such as language and information, begin to be overcome, people may increasingly apply for jobs in other European countries and should not be at a disadvantage.

More recently, organisations representing the industry or chemical professions at European level have produced lists of broadly comparable qualifications, an approach which promotes transparency of qualifications rather than equivalent requirements for specified jobs. The European Communities Chemistry Council (ECCC) has developed schedules of qualification standards at full professional (degree) level, senior technician and junior technician levels. Relevant qualifications are listed for each Member State, along with guidelines on appropriate training courses and job specification with level of responsibility. These establish potentially useful lists of equivalents for employers recruiting from other Member States. However, employers in our study were not aware of these lists, and earlier lists of equivalents from the Comparability project. It is important that employers have information on the level of 'foreign' qualifications they may encounter, so that job applicants from other Member States are not disadvantaged.

5.8. Gaps in knowledge about labour mobility and qualifications

5.8.1. Employers' practices

Our research identifies the policies and practices of chemicals and pharmaceutical companies, in particular their recruitment 'pool', which types of staff they recruit from other Member States, who they 'transfer' for temporary periods, and their attitude and practices in relation to 'foreign' qualifications. Only 14 employers were involved in the study, and we do not know how representative they are of the industry as a whole. Moreover, the industry is almost certainly different from others, including in its emphasis on 'experience' over qualifications for many jobs and in its strong emphasis on local recruitment. These two features have particularly strong implications for the issue of recognition of other European qualifications.

As we have shown, both in general and in the chemicals industry, levels of mobility are low and employers report that they receive few applications from citizens of other Member States. Future

research might investigate this further, by establishing which industries either target or receive applications from people in other Member States, and explore the reasons for this.

There is a need for further research on the practices of employers in other industries. This could be both quantitative, to identify the main issues in terms of policy and practice on recruitment and qualifications, and qualitative, to establish a more complete picture of where and why variation exists. This research might help to identify the existence of any barriers which result from recruitment policies and practices.

5.8.2. Mobile employees

Our research has not looked at mobility from the perspective of employees; indeed this is a major gap in existing research. We know little about who these individuals are, their motives and experiences. On the issue of qualifications, we do not know how they present their 'foreign' qualifications to prospective employers and whether they experience difficulty in having these recognised and accepted as equivalent.

Existing research, which has largely been conducted at aggregate level has shown mobile employees to be a diverse group. Professional and manual workers are more strongly represented than employees at intermediate level, possibly reflecting temporary skill needs to 'trouble-shoot' and for construction and other labouring work. Further research needs to be conducted on mobile employees at all occupational levels. This could seek information on their skills and qualifications, reasons for moving, expected length of stay and their personal characteristics including sex and age.

5.8.3. Other employees

Despite a series of measures aimed at promoting mobility, levels of movement between Member States for employment remain low. We have suggested that increasing use of the internet to advertise job vacancies may encourage applications across Europe. Services such as EURES may also help to do this, by providing easy access to information and working in other Member States. However, the reasons for the low rates of mobility are not known, and most literature on the subject presents only broad socio-economic explanations concerning the role of trade and the narrowing of income differentials.

There is a need for research on the general population in Europe, on their attitudes towards mobility to other Member States, on the factors relevant to their decision and the role of qualifications. It is possible that many citizens are unaware of their right to free movement, or believe that their qualifications will not be understood or recognised. It is important that these potential obstacles to mobility are known to ensure that future policy measures are appropriate and effective.

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Appendix 1. Interview schedules

Mobility of labour and qualifications in the European chemicals and pharmaceutical industry

Interview Schedule
Employers

Background and recruitment practices

1. What are the company's main areas of business?

2. What are the key occupations, e.g. process operator, research, chemical engineer?

3. What are the main sources of recruitment for the key occupations?
   (local, national or international)
   Does the company prefer to develop staff internally or recruit experts?
   (if a mixture – explain)
4. Which jobs in the company require formal qualifications?
   What qualifications are these?
   Is entry to any occupations regulated by chartered bodies?

5. Are all jobs in the company available to foreign nationals?
   IF NO: Which are not, and what are the reasons for this?

Recruitment/transfer from other Member States

6. Does the company regularly recruit/transfer employees from other Member States?
   IF YES: for which occupations and why?
   Are these temporary secondments or permanent posts?

7. Is any cross-border transfer or recruitment concentrated in particular occupations, e.g. research and development?
   IF YES: probe for reasons.

8. Do mobile employees tend to have particular characteristics (e.g. male, young, single)?

9. Does any cross-border movement tend to involve neighbouring countries, or divisions within the company rather than external recruitment?

10. Is the company involved in any European initiatives aimed at promoting mobility among researchers, students or other groups?
IF YES: can we have details?

11. Has the development of information technology reduced the need for cross-border movement of employees (e.g. by improving communication and enabling 'virtual meetings')?

Qualifications – recognition and common standards

12. How does the company know whether foreign qualifications are at the required level for the job?
Do they have information on foreign equivalents to Italian/French/German qualifications? Who produces such information?

13. Is it possible to identify common qualification standards within the European chemicals and pharmaceuticals industry?
IF YES: Which occupations or professions and at what level are the qualifications?
TO ALL: Are such standards being sought after or avoided?

14. Is the company involved in any partnerships or networks on transparency and recognition of vocational qualifications?
IF YES: Which organisations are involved as partners and what has been done on the issue?

Measures to promote mobility

15. Would cross-border movement and recruitment increase if measures were taken to improve recognition of qualifications between Member States?
What measures could be taken?

16. Would any of the following help to increase cross-border recruitment and mobility:
- common qualification standards for particular occupations within the European chemicals and pharmaceuticals industry;
- a personal skills card (proposed in a European white paper) showing skills and qualifications;
- common European currency?

IF YES: Would any of these changes result in significant increases in cross-border recruitment/mobility?

17. What factors other than qualifications affect movement? (e.g. language, housing, schooling).

Mobility of labour and qualifications in the European chemicals and pharmaceutical industry

Interview Schedule
Representative bodies
(CIA, FEDERACHIMICA, VCI, UIC)

Background and involvement in mobility issues

1. Remit of the organisation (e.g. membership, purpose, activities).

2. Has your organisation been concerned with issues of mobility of labour and recognition of qualifications?
   IF NO: Is it an issue which might concern your organisation in the future? Why/why not?
   IF YES: Do you have any of the following:
   policy on cross-border recruitment/mobility?
   policy on recognition of vocational qualifications?
   research reports/policy documents on labour mobility or recognition of foreign qualifications?

3. Are you involved in any partnerships or networks on transparency and recognition of vocational qualifications?
   IF YES: Which organisations are involved as partners and what have you done on the issue?

Mobility of labour – extent and nature

4. Do you have a rough idea of how much movement (transfer or recruitment) takes place between European Member States?

5. Are all jobs in the chemicals industry available to foreign nationals?
   IF NO: Which are not, and what are the reasons for this?

6. Is any cross-border movement of labour concentrated in particular occupations, e.g. research and development?
   IF YES: probe for reasons.

7. Does cross-border movement tend to involve neighbouring countries, or divisions in the same country, rather than external recruitment?

8. Has the development of information technology reduced the need for cross-border movement of employees (e.g. by improving communication and enabling 'virtual meetings')?

Qualifications – recognition and common standards

9. Is it possible to identify common qualification standards within the European chemicals and pharmaceuticals industry?
   IF YES: Which occupations or professions and at what level are the qualifications?
   TO ALL: Are such standards being sought after or avoided?

10. Which jobs in the chemicals/pharmaceutical industry require higher education?
    Is entry to any occupations regulated by chartered bodies?

11. How do employers know whether foreign qualifications are at the required level for the job?
    Do they have information on foreign equivalents to Italian/French/German qualifications? Who produces such information?

Measures to promote mobility

12. Would cross-border movement and recruitment increase if measures were taken to improve recognition of qualifications between Member States?

13. Would any of the following help to increase cross-border recruitment and mobility:
    - common qualification standards for particular occupations within the European chemicals and pharmaceuticals industry;
    - a personal skills card (proposed in a European White paper) showing skills and qualifications;
    - common European currency?

    IF YES: Would any of these changes result in significant increases in cross-border recruitment/mobility?

14. What factors other than qualifications affect movement? (e.g. language, housing, social security, schooling).

Appendix 2. The main legal mechanisms granted by EU law

The main legal rules are contained in:

Regulation 1612/68 on freedom of movement for workers within the Community (OJL 257,19.10.1968).

Regulation 1408/71 and 574/72 on the application of social security schemes to employed persons, self-employed persons and members of their family moving within the Community (updated version OJ L28 of 30.01.1997).

Regulation 1251/70 on the right of workers to remain in the territory of a Member State after having been employed in that State (OJ L 142, 30.06.1970).

Directive 360/68 on the abolition of restrictions on movement and residence within the Community for workers of the Member States (OJ L 257, 19.10.1968).

Appendix 3. European nationals in the labour force as proportion of national labour force

Country	1992	1995	1998
Austria	N/A	0.9	1.2
Belgium	1.9	1.6	1.7
Germany	0.2	N/A	N/A
Denmark	0.4	0.6	0.9
Spain	0.6	0.7	0.7
Finland	N/A	N/A	0.6
France	1.6	1.5	1.4
Greece	0.5	0.7	0.6
Ireland	2.5	2.6	4.1
Italy	N/A	N/A	N/A
Luxembourg	4.2	4.0	3.9
Netherlands	0.8	0.8	0.7
Portugal	0.4	0.6	11.9
Sweden	N/A	N/A	2.9
United Kingdom	0.7	0.6	0.7
Total	0.7	0.8	1.5

Source: Eurostat, Community labour force survey

Cedefop (European Centre for the Development of Vocational Training)

Mobility in the European chemicals industry sector: The role of transparency and recognition of vocational qualifications

Heather Rolfe

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While issues of mobility and qualifications are regarded as important according to European policy, very little is known about the real impact of measures at Community level. Briefly, this is the background to the initiative to launch three studies focusing on the transparency issue and its relation to mobility.

Coverage of four main areas is attempted by the reports: the current situation on mobility; polices in the area of transparency and recognition of qualifications; the link between mobility and transparency; and European standards.

The two related studies are: *Mobility in the European tourism sector: The role of transparency and recognition of vocational qualifications*, by Greg Richards, European Association for Tourism and Leisure Education (ATLAS); and *Mobility in the European health sector: The role of transparency and recognition of vocational qualifications*, by Mariann Skar, University of Tromso.

Heather Rolfe

Mobility in the European chemicals industry sector

The role of transparency and recognition of vocational qualifications

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72